PT2000™ & TopGun™

Portable Data Terminals

User's Guide

Disclaimer

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Style Conventions

Document Conventions

Formatting conventions are used throughout this guide as a method of providing consistency for notes, cautions, and warnings.

Notes

Notes appear throughout the manual to provide additional information on a topic, including technical details, exceptions to instructions and other pertinent information. These notes are identified by the notepad symbol and ***bold italics text***.

Cautions

Cautions appear when there is information for the user that is strongly recommended. They are identified by the exclamation mark in a triangle and ***bold italics text***. This text appears in ***gold bold italics text*** if the user is viewing the manual in electronic PDF form on their computer.

Warnings

Warnings appear when there is something of extreme importance for the user to know prior to proceeding. They are identified by the exclamation mark in a triangle and ***bold italics text***. This text appears in ***red bold italics text*** if the user is viewing the manual in electronic PDF form on their computer.

Keys and Keystroke Conventions

Portable keys and keystroke conventions are used throughout this manual to identify the difference between a key on the portable and keystrokes input by the user. Brackets such as: **<Scan>** indicate a key on a portable data terminal. Data or keystrokes entered by the user, and filenames or directories are presented in a `monospaced` typeface.

Radio Frequency Interference

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe A est confirme à la norme NMB-003 du Canada.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Technical Support

PSC Website Technical Support

The most comprehensive source for technical support and information for PSC products is the PSC website: www.pscnet.com. The site offers product support, product registration, warranty information, answers to frequently asked questions (product FAQs), product manuals, product tech notes, software updates, patches, demos, and instructions for returning products for repair.

Reseller Technical Support

Another excellent source for technical assistance and information is an authorized PSC reseller. A reseller is directly acquainted with specific types of businesses, application software, and computer systems and, therefore, is in the best position to provide individualized assistance.

E-Mail Technical Support

If the solution to a technical support question is not available through the PSC website or a local reseller, contact PSC technical support directly via E-mail at TechSupport@pscnet.com.

Telephone Technical Support

For those without E-mail access, call toll-free in the USA 1 (800) 547-2507 or (541) 683-5700 from outside the United States of America.

PSC Solutions Group

For advanced, cost-effective services, contact the PSC Solutions Group (PSG) at (888) 583-3008 or (541) 683-5700 from outside the United States of America, or psg@pscnet.com. You can also visit PSG's webpage, accessible at www.pscnet.com.

1

Introduction & Quick Start Guide

Overview

This manual contains complete information about using and programming the PT2000 portable and TopGun module.

The manual contains the following sections:

- Chapter 2, About the PT2000 and TopGun, provides a complete overview of the portables, including descriptions of the keypad, the display screen, and optional accessories. Read this chapter before using the portable.

- Chapter 3, Using the PT2000 and TopGun with PALPRO, contains complete information about operating the portable, connecting it to a host computer or terminal, and uploading data to the host. Read this chapter before using the portable.

- Chapter 4, Programming the PT2000 and TopGun, explains how to customize the portable's settings. Read this chapter to change the default settings.

- Chapter 5, Transferring Data With PSC Utilities, provides information about software programs to transfer data between the portable and a DOS PC, an IBM 3151 terminal, a UNIX workstation, or a Macintosh computer. Read this chapter to upload collected data.

- Appendix A, Programming Parameters, contains ID numbers, acceptable settings, and defaults for all programming parameters for TopGun and the PT 2000. Refer to this chapter to change settings in the portable.

- Appendix B, Full Keyboard Support, includes tables listing Code 39, ASCII, and mnemonic values to use in programming the portables. Refer to this chapter when creating bar codes for programming the portable.

- Appendix C, The TopGun Module, provides information about the TopGun module. Refer to this chapter if the TopGun module is separate from the PT2000 or to change the direction of the laser.
- Appendix D, The PT Dock, explains how to set up and use the optional dock for the PT2000 or TopGun. Refer to this chapter before using the dock for the first time or when connecting it to a PC.
- Appendix E, Batteries, provides information about using alkaline or nickel-cadmium batteries and about the lithium backup battery installed in the portable. Refer to this chapter to replace one type of battery with another in the portable.
- Appendix F, Connector Configurations, identifies pin assignments for the connectors on the PT2000. Refer to this chapter to order cables or make custom ones.
- Appendix G, Programming Bar Codes, contains bar codes for scanning to set selected programming parameters. Use this chapter to change settings in the portable.
- Refer to the Index to find specific topics in this user's guide.
- About this Guide contains a section on Technical Support, which provides information on technical assistance. Refer to this section for help or technical assistance.

Getting Started Quickly

The PSC portable comes with an application named PALPRO loaded in memory. PALPRO includes three useful data-collection programs for using the PT2000 or TopGun without additional programming.

Follow the steps below to begin using the portable with PALPRO immediately. Page references show where to find more information. They are live links in the PDF (on-line portable document format) version of this manual.

1. Fill out and return the registration card enclosed with the unit. If there is a TopGun module, be sure to include *both* serial numbers on the registration card.

2. To replace the installed alkaline batteries with a nickel-cadmium battery pack, refer to Appendix E on page 115.

3. With a PT2000, attach a bar code scanner or magnetic stripe reader by pushing its plug into the jack at the top of the PT2000. Be sure the plug is firmly in place.

4. Turn the portable on by pressing the green **I/O** button.

   Note: ***If the portable has been customized, it may operate differently. Check with a systems administrator for instructions.***

5. Press the **ENTER** key twice to accept the current date and time, or if necessary, change the date and time settings. (Refer to page 19.)

6. Enter a password. (Refer to page 20.)

7. Press any function key to display the **PALPRO Options** menu.

8. To use the portable as a keyboard wedge, connect it to a PC or terminal following the instructions on page 21.

9. Then select **<F3>** from the **PALPRO Options** menu. (Refer to page 23.)

   - When not using the portable as a keyboard wedge, press the **<F2>** key to display the list of available applications, and select the application to use. (Refer to page 26–page 29.)

The PT2000 or TopGun is now ready to begin collecting data. Enter data with the TopGun module or another bar code scanner, a magnetic stripe reader, or the keypad.

For information about uploading collected data from the portable to a PC, refer to "Uploading Data to the Host PC," starting on page 49.

2

About the PT2000 and TopGun

The PT2000

The PSC PT2000 is a rugged, handheld, portable data-collection terminal that allows bar code scanning technology anywhere.

The PT2000 accepts input from any of the following devices:

- The TopGun module (refer to page 9)
- Wands (visible light and infrared)
- Handheld charge-coupled device (CCD) scanners
- 5-volt handheld laser scanners
- ID badge readers
- Magnetic stripe readers (one track)

The PT2000 automatically recognizes and discriminates among the following bar code symbologies:

Codabar	Code 128	Code 39
Code 93	EAN-8	EAN-13
Interleaved 2 of 5	JAN-8	JAN-13
UPC-A	UPC-E	UPC/EAN/JAN extensions

The PT2000 verifies acceptance of input by sounding a beep. Change the beeper's volume, pitch, and duration to suit the work environment or personal preferences.

The PT2000's liquid crystal display (LCD) provides easy readability. Its keypad provides full alphanumeric input capabilities and includes four programmable function keys. The PT2000 features a built-in PC interface, for use as a keyboard "wedge" for those applications requiring fixed-station scanning.

The PT2000 comes with the *PALPRO* application installed. *PALPRO* is made up of three useful programs coexisting in memory:

- *ASSETPRO*, for tracking assets at various locations.
- *INVPRO*, for inventory control. Customize it to collect item-and-quantity information or item-only data.

- *TRACKPRO*, for tracking check-in and check-out of articles at one or more locations. An optional date-and-time stamp records when each item is checked in or out.

PALPRO is part of the PSC Portable Applications Library (PAL). With PAL, the PT2000 can be customized for specific purposes without using a programming application. Or use the PSC Program Generator™ (PPG™) to create additional custom programs for the PT2000.

Note: *Please contact a PSC dealer for more information about PAL or PPG.*

TopGun

TopGun is an integrated unit consisting of a laser module mounted on a PT2000. The TopGun module is also available separately as an add-on for the PT2000 (refer to). The module attaches to the 9-pin connector at the top of the PT2000 and can be adapted for right- or left-handed use. The module has two triggers, allowing scanning with either the index finger or thumb.

Use TopGun to scan bar code labels on flat, curved, or irregular surfaces at distances ranging from one inch to two feet. The TopGun laser module operates like other handheld lasers—just aim and press the trigger. Light-emitting diodes (LEDs) on the module indicate laser activation and good reads. An audible tone also indicates good reads. Collected data is stored in the PT2000.

For complete information about the TopGun module, refer to
on .

Figure 2-1:   The TopGun Module

The Keypad

The keypads on the PT2000 and TopGun have three types of keys: data keys, function keys, and action keys (refer to). Each key produces a beep when pressed.

Figure 2-2:   The PT2000 and TopGun keypads

Data Keys

Use data keys to enter letters, numbers, and several other characters.
There are 26 of these keys. Each key can be used in two modes: normal
and alpha. Use the **<Alpha>** key to switch between the modes (see the
description of the **<Alpha>** key below).

Function Keys

There are four function keys, **\<F1\>** through **\<F4\>**, at the top of the keypad. Alpha mode changes these keys to **\<F5\>** through **\<F8\>**. Actions assigned to the function keys are determined by the active program.

Action Keys

There are four action keys: **\<I/O\>**, **\<Alpha\>**, **\<BKSP\>**, and **\<ENTER\>**.

> ***Note: If the portable does not power on when the \<I/O\> key is pressed, replace the alkaline batteries or recharge the battery pack (refer to*** Appendix E ***).***

\<I/O\>: Press this key to turn the portable on and off. When turned on, the portable beeps and returns to its previous location when it last shut off. The portable does not beep when the **\<I/O\>** key is pressed to turn the unit off. The **\<Alpha\>** key has no effect on the **\<I/O\>** key.

\<Alpha\>: Press the **\<Alpha\>** key to toggle between normal and alpha modes. In normal mode, a press of a key either inserts the nonletter character printed on or above the key or performs an action (for example, clearing the entry or scrolling through the display). In alpha mode, a press of a key inserts the letter printed on it.

The following example uses two keys to illustrate the difference between alpha mode and normal mode:

Result of Keypress		
Key	**Normal Mode**	**Alpha Mode**
% / H	**%**	H
P / 8	8	P

Press the **<Alpha>** key to enter alpha mode. A caret (^) appears at the cursor position in the display screen. The portable remains in alpha mode until a function key is pressed, or until the **<Alpha>** key is pressed again.

<BKSP>: This is the backspace key. Press it to move the cursor one place to the left and delete the character there.

<ENTER>: Press this key to enter the current data string and move to the next programming command.

The Display Screen

The portable's display screen can show 4 lines of text with up to 16 characters on each line. However, the unit can actually hold up to 24 lines of data with up to 80 characters on a line. Scroll the display to view data that doesn't currently appear.

The Virtual Display

The portable's display screen is like a window to a larger display area, called **virtual display** (refer to). Data longer than 16 characters is placed in the virtual display while entering or reading information. Information automatically carries over (or "wraps") to the next line if there are more than 80 characters in a line.

Figure 2-3: Virtual display vs. actual display

```
F1=NEXT F2=PRE
REC#11 OF 16
120850A30NME5274J400967629
F3=REV F4=EXIT
F1=NEXT F2=PRE
REC#12 OF 16
120850A30NME5274J400984019
F3=REV F4=EXIT
F1=NEXT F2=PRE
REC#13 OF 16
120850A30NME5274J400942885
F3=REV F4=EXIT
```

24 lines

Display screen
(4 lines by 16
characters)

80 characters
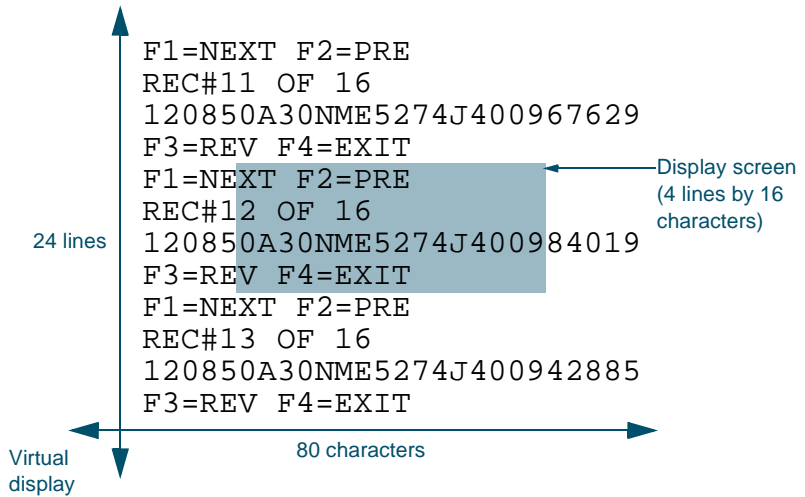
Virtual
display

When the portable is in normal mode, scroll text through the display screen by pressing the **<A>**, **<B>**, **<C>**, and **<D>** keys on the keypad. When using these keys, the text in the virtual display remains in place and the display screen changes perspective. The symbol printed above each key indicates the direction in which the display screen moves over the virtual display that key is pressed.

▲
A   Moves the display screen up one line

▼
B   Moves the display screen down one line

◄
C   Moves the display screen left eight characters

►
D   Moves the display screen right eight characters

The virtual display continues to maintain the latest 24 lines of data once all lines of the virtual display are full. The oldest data is "pushed off the top" as new data is added at the bottom.

Displaying Information about the Portable

Display information about the portable by scrolling the display screen past the last character on a current line. Press the **<D>** key until the version number is displayed. The display screen lists the system version number and the amount of random-access memory installed (refer to [Figure 2-4](#)).

Figure 2-4:   Display screen showing version number

```
PT2000
Vers.  4.0  128k
```

The Beeper

The portable provides audible feedback to indicate when a bar code has been scanned successfully and to acknowledge when a key is pressed. The default setting provides one beep to indicate a good scan or key entry. Another beep sequence warns of possible problems. The pitch, number, volume, and length of beeps are all programmable.

The Auto-Off Feature

The **Auto-Off** feature lets the PT2000 or TopGun conserve power by partially shutting down when not in use. Pressing the **<I/O>** key returns the portable to full power. Set the time between the last activity in the portable and **Auto-Off** from `1` through `99` minutes. The default is `10` minutes. A setting of `00` disables **Auto-Off**.

The PT Dock

The PSC PT Dock™ (refer to) is specially designed for use with the PT2000 and TopGun. The dock provides a connection between the PT2000 or TopGun and the PC without sacrificing the convenience of portability. To transmit data to or from the portable, place the unit in the dock. To use the PT2000 or TopGun for data collection again, remove it from the dock. Or, use the PT Dock to recharge the portable's rechargeable NiCd battery pack and backup lithium battery.

For more information about the PT Dock, refer to .

3

Using the PT2000 and TopGun with PALPRO

Use the PT2000 or TopGun as a keyboard wedge to enter data directly into an application one item at a time. When away from the PC, it is possible to collect all the data records and upload them to the host PC later. The number of data records that can be collected before uploading them depends on how much random-access memory (RAM) the portable has.

Getting Started

Unless it has been customized, the PT2000 or TopGun has three alkaline batteries installed and is programmed for simple data collection. To begin using the portable, attach the input device (PT2000 only; refer to Attaching an Input Device to the PT2000, below) and turn it on.

Note: *This chapter describes how to use the portable with its original PSC programming (PALPRO). If the portable has been customized, it may operate differently. Check with a systems administrator for revised operating instructions.*

Attaching an Input Device to the PT2000

The PT2000 can be used with most industry-standard input devices equipped with a 9-pin squeeze connector.

Bar Code Scanner Attach a bar code scanner by pushing its connector into the connector at the top of the PT2000. Be sure the scanner connector is firmly in place. Refer to the input device's operating manual for instructions on its use.

Magnetic Stripe Reader To attach a compatible[1] magnetic stripe reader (MSR) complete the following steps:

1. Remove the black plastic **welp** clip from the connector on the top of the PT2000 (refer to Figure 3-1).

2. Using a flat-blade screwdriver, remove the two screws securing the clip, and pull the clip off the connector.

3. Push the MSR's connector into the PT2000's connector.
   - Be sure the MSR connector is firmly in place.

1.Only the following MSRs can be used for this purpose: 00-000-2A (Track 1), 00-000-2B (Track 2) or 00-000-23 (Track 3).

Figure 3-1:   The input connector on the PT2000

Welp clip
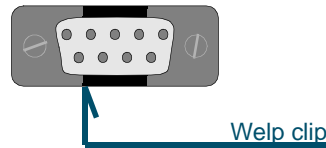
Turning On the Portable

Turn the PT2000 or TopGun on by pressing the green **<I/O>** button. The display screen returns to the view displayed when it was turned off.

Setting the Time and Date

Figure 3-2:   The Time and Date Display

```
Current Date:
02/01/02
Enter New Date:
¤
```

When turning the portable on for the first time, the display screen shows the date currently loaded in memory. If the displayed date is correct, press the **<ENTER>** key. If the date is wrong, enter the correct date. Use two digits each for the month, for the day, and for the year (e.g., **020101**). Press **<ENTER>** for the program to automatically format the entry (e.g., **2/01/01**).

Figure 3-3:   The Current Time Display

```
Current Time:
09:17:32
Enter New Time:
¤
```

The next display screen shows the time currently loaded in the portable's memory. If the displayed time is correct, press the **<ENTER>** key. If the time is wrong, enter the correct time. Use two digits each for the hour, for the minute, and for the seconds (e.g., **133000**). If the portable's

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system clock is set for 12-hour format, type **A** for A.M. or **P** for P.M. after the number (e.g., **013000P**). Press **<ENTER>** when finished.

> *Note:* ***It is possible to return to the date and time prompts from other display screens and menus (such as the password prompt screen shown below). Or, change the date and time formats (refer to*** ***).***

Setting a Password

Figure 3-4:   The Password Display

```
ENTER CURRENT
OR NEW PASSWORD
¤
F-KEY=SET TIME
```

Password security allows a manager or supervisor to customize a portable and then hand it off to a worker. A password can contain up to 128 characters and can use any characters available on the portable. Without the password, the worker cannot switch applications or make changes to an application's title or prompts. The password prompt screen appears after entering the date and time from a reset.

> *Note:* ***If a password is lost or forgotten, reset the portable and start over with a new password.***

Figure 3-5:   PALPRO Options Menu

```
PSC PALPRO
08:18:04¤
03/01/98
F-KEY=CONTINUE
```

After the password is entered, the text in Figure 3-5 is displayed. Press a function key (any of the blue keys at the top of the keypad), for the display to change to the **PALPRO Options** menu. The portable is now ready to collect data.

Collecting Data

When finished setting up the PT2000 or TopGun (refer to the previous section), the **PALPRO Options** menu appears on the display screen. Use the menu to choose a **PALPRO** application or use the portable as a keyboard wedge.

Using the Portable as a Keyboard Wedge

With the PT2000 or TopGun attached to the PC or IBM 3151 terminal as a keyboard wedge, use a bar code label or magnetic stripe to enter data directly into the application. Data can also be entered by using the keypad on the portable.

Installing the Keyboard Wedge

Two PSC cables[1] are required to install the portable as a keyboard wedge.

To connect the PT2000 or TopGun as a keyboard wedge, complete the following steps:

1. Plug the 15-pin connector into the cable connector on the bottom of the portable.

Figure 3-6: Keyboard wedge installation for PCs

1.For a listing of PT2000 cable numbers, consult the PSC Price Book at: http: www.pscnet.com.

2. Attach the other end to the 25-pin connector of the keyboard wedge cable (refer to).

3. *PC:* Attach the small male plug of the PSC cable to the keyboard jack on the PC (refer to).
    Terminal: Insert the keyboard cable plug into the modular jack on the PSC cable connector.

4. *PC:* Attach the keyboard cable to the small female jack on the PSC cable (refer to).
    Terminal: Insert the modular plug of the PSC cable into the keyboard input jack on the terminal.

5. Scan the appropriate bar code below:

AT or PS/2 models 30-286, 50, 50Z, 60, 70, 80, 90, 95 (U.S. keyboard)

```
|||||||||||||||||||||||||||||||||||||
*  $  +  $  -  D  2  C  Q  1  1  E  E  *
```

IBM 3151 terminal

```
|||||||||||||||||||||||||||||||||||||
*  $  +  $  -  D  2  C  Q  1  5  E  E  *
```

Using the Keyboard Wedge

To use the PT2000 or TopGun as a keyboard wedge, complete the setup and installation procedures described earlier in this chapter. Then complete the following steps:

1. From the **PALPRO Options** menu, select **<F3>**.

Figure 3-7:   The PALPRO Options Menu

```
PALPRO OPTIONS
F2=SELECT PROG
F3=WEDGE
F4=PASSWORD¤
```

2. Open the application and place the cursor at the location where the data is to be entered.

3. Use a bar code scanner (the TopGun module or another device attached to the PT2000), a magnetic stripe reader, or the keypad to enter data.

- When scanning a bar code or running a magnetic stripe card through the reader, the data is entered at the cursor position in the application.
- When using the keypad to enter the data, the data is displayed in the second line of the PT2000 display screen.
- Press the **<ENTER>** key, to send the data to the PC.

4. When finished collecting data, press the **<F5>** key (**<Alpha>+<F1>**) to exit.

Figure 3-8: The PT2000 Wedge Menu

```
* PT2000 WEDGE *
¤


F5=EXIT
```

Using PALPRO

PALPRO combines three Portable Applications Library applications into a single, convenient program (refer to). With **PALPRO** installed on the PSC portable, it is possible to switch from one application to another without having to install each application.

Selecting a PALPRO Application

Complete the following steps to select a **PALPRO** application:

1. With the **PALPRO Options** menu displayed, press the **<F2>** key.

Figure 3-9: The PALPRO Options Menu

```
PALPRO OPTIONS
F2=SELECT PROG
F3=WEDGE
F4=PASSWORD¤
```

2.   Press **<F1>** to use **ASSETPRO**, **<F2>** to use **INVPRO**, or **<F3>** to use **TRACKPRO**.

Figure 3-10:   Selecting a PALPRO application

```
F1=ASSET MGMT
F2=INV MGMT
F3=ITEM TRACKING
F4=EXIT¤
```

Note: *If* *INVPRO* *is selected, the next screen asks the user to select one or two prompts (refer to* page 29 *for information). Make a selection before going on to the next step.*

3.   To change the application's title or prompts, select **<F3>**. Otherwise, select **<F4>**.

Figure 3-11:   Changing Prompts Menu

```
CHANGE PROMPTS?

F3=YES
F4=NO¤
```

- When finished changing prompts (or if **<F4>** was selected in step **3**), the selected application's menu appears on the portable's display screen.
- For information about using the individual applications, refer to page 27–page 29.

Note: *For information about changing titles and prompts, refer to* Changing Program Titles and Prompts*, below.*

Note: *If* *TRACKPRO* *was selected, the user is given the option of adding a date/time stamp before getting to the application menu. (Refer to* page 33*.)*

Changing Program Titles and Prompts

PALPRO allows the user to change the title that appears on the menu for each application, or change the prompts for each application. Change titles or prompts after selecting an application. To use the application's current title and prompts, select **<F4>** at the prompt shown at the left. To change the title or prompts, complete the following steps:

1. Press the **<F3>** key at the prompt.

Figure 3-12: Changing Prompts Menu

```
CHANGE PROMPTS?

F3=YES
F4=NO¤
```

2. Enter a name for the application (for example, **FIXED ASSETS**) followed by the **<ENTER>** key. The entered name appears at the top of the application menu for the current application.

Figure 3-13: Changing the Title

```
ENTER APPL TITLE
FIXED ASSETS¤
```

3. Enter the text for the first prompt (for example, **BUILDING ID**) followed by the **<ENTER>** key.

Figure 3-14: Entering the First Prompt

```
ENTER PROMPT 1
BUILDING ID¤
```

4. Enter the text for the second prompt (for example, **ASSET NO.**) followed by the **<ENTER>** key.

Figure 3-15: Entering the Second Prompt

```
ENTER PROMPT 2
ASSET NO.¤
```

Switching to Another PALPRO Application

To switch from one **PALPRO** application to another, complete the following steps:

1. Select **<F5>** from the current application's menu to exit the application.

Note: ***Enter*** **<F5>** ***on the keypad by pressing the*** **<Alpha>** ***key and then the*** **<F1>** ***key.***

Figure 3-16: Application Menu

```
ASSET MGMT¤
F2=COLLECT
F3=FILE OPTIONS
F5=EXIT
```

2. At the prompt, enter the current password, or press any function key (the blue keys at the top of the keypad) to return to the menu for the current application.

Figure 3-17: Password Prompt

```
ENTER PASSWORD
¤

F-KEY=EXIT
```

3. When the correct password is entered, the original **PALPRO** screen appears.

4. Press any function key to display the **PALPRO Options** menu.

5. Follow the steps under .

Using ASSETPRO Use **ASSETPRO** to track assets (furniture, phones, computers, electronic equipment, etc.) at various locations (example: departments, rooms, floors, buildings, etc.). With **ASSETPRO,** enter an identification code for a location, collect all the asset IDs at the location, and then enter an identification code for a different location.

To use **ASSETPRO**, complete the following steps:

1. From the **ASSETPRO** application menu, select **<F2>**.

Figure 3-18: ASSETPRO Application Menu

```
ASSET MGMT¤
F2=COLLECT
F3=FILE OPTIONS
F4=EXIT
```

2. The first prompt appears on the screen. Enter the identification code for the location (example, **WH3E**).
   - Scan a bar code for the location or use the keypad to enter the location ID.
   - When using a scanner, the code is entered automatically; when using a keypad, press the **<ENTER>** key.

Figure 3-19: The Location ID Prompt

```
LOCATION ID
¤


F3=REV F4=EXIT
```

3. The second prompt now appears on the first line of the screen, and the location ID appears on the third line.
   - Scan the bar code identifying an asset, or use the keypad to enter the asset's ID number or description (for example, **004322**).

Figure 3-20:   The Item ID Prompt

```
ITEM ID
¤
WH3E
F3=REV F4=EXIT
```

4.   The **location ID** and **item ID** appear together on the third line of the screen, separated by a comma, and the second prompt remains on the screen.

●   The portable is ready to accept another ID for an asset at the current location.

Figure 3-21:   The Next Item ID Prompt

```
ITEM ID
¤
WH3E,004322
F3=REV F4=EXIT
```

5.   When finished collecting asset IDs for the location, press the **<F4>** key to return to the first prompt.

6.   Repeat steps **2**-**5** until IDs for each asset at every location is collected.

7.   Press the **<F4>** key to return to the first prompt.

8.   Press the **<F4>** key to return to the application menu.

The portable stores the collected data in a single ASCII text file. When uploading the file to the PC, the data appears as a list. Each line in the list contains two fields separated by a comma. The first field is the location, and the second field is the equipment identification number. The example in is part of a data file uploaded from a portable that used **ASSETPRO** to collect data.

Figure 3-22: Collected Data in ASCII text file

```
BLDG1,000295
BLDG1,001862
BLDG1,000945
BLDG1,001008
BLDG1,000036
BLDG1,000490
BLDG2,000288
BLDG2,002596
```

Using INVPRO Use this application to track inventory. **INVPRO** provides a choice of one prompt or two. Use one prompt to scan or enter an ID number or description for each item. Use two prompts to scan or enter an item ID and the quantity of that item.

To use **INVPRO**, complete the following steps:

1. At the first screen that appears, press the **<F4>** key to use the application with only one prompt.
- Use the **<F3>** key for two prompts.

Figure 3-23: Selecting the Number of Prompts

```
USE 2 PROMPTS?

F3=YES
F4=NO¤
```

2. Press the **<F3>** key to change the title or prompts that appear on the application's display screens. (Refer to for instructions on changing the prompts.)

Figure 3-24: Changing Prompts

```
CHANGE PROMPTS?

F3=YES
F4=NO¤
```
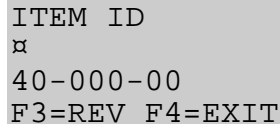
- To use the current title and prompts, press the **<F4>** key.

---

3. The application menu appears next on the display screen.

4. Continue with the instructions for <u>Using One Prompt</u>, below, or <u>Using Two Prompts</u> on <u>page 31</u>, depending on the selection made in step **1**.

Using One Prompt

1. Select **<F2>** from the application menu.
   - A prompt appears on the screen.

2. Scan the bar code for an inventory item, or use the keypad to enter the item's ID number or description.
   - Using a scanner, the code is entered automatically; with a keypad, press the **<ENTER>** key.

3. The item ID number appears on the third line of the screen. The portable is ready to accept another item ID.

Figure 3-25: The Item ID Display

```
ITEM ID
¤
40-000-00
F3=REV F4=EXIT
```

4. Repeat step **1** until all IDs for all items are collected.

5. Press the **<F2>** key to return to the application menu.

The portable stores the collected data in a single ASCII text file. When uploading the file to the PC, the data appears as a list. Each line in the list contains the ID for a single item. The example in <u>Figure 3-26</u> is part of a data file uploaded from a portable that used **INVPRO** with one prompt to collect data.

Figure 3-26:   Collected Data in ASCII text file

```
40-000-00
40-002-00
40-006-00
40-010-00
00-000-17
00-000-19
00-000-02
00-000-11
```

Using Two Prompts

1. Select **<F2>** from the application menu. The first prompt appears on the screen.

Figure 3-27:   The Item ID Display

```
ITEM ID
¤


F3=REV F4=EXIT
```

2. Scan the bar code for an inventory item, or use the keypad to enter the item's ID number or description.
   - Using a scanner, the code is entered automatically; with a keypad, press the **<ENTER>** key.

Figure 3-28:   Enter the Number of Units of Item in Inventory

```
QUANTITY
¤
40-000-00
F3=REV F4=EXIT
```

3. The second prompt now appears on the first line of the screen, and the item ID appears on the third line.

4. Enter the number of individual units of the item in inventory.

5. The item number and quantity appear together on the third line of the screen, separated by a comma, and the first prompt

---

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reappears on the screen. The portable is ready to accept another item ID

Figure 3-29:   Input Another Item ID

```
ITEM ID
¤
40-000-00,25
F3=REV F4=EXIT
```

6.   When finished collecting inventory data, press the **<F4>** key to return to the application menu.

The portable stores the collected data in a single ASCII text file. When uploading the file to the PC, the data appears as a list. Each line in the list contains two fields separated by a comma. The first field is the item ID, and the second field is the number of units of that item. Figure 3-30 shows part of a data file uploaded from a portable that used **INVPRO** with two prompts to collect data.

Figure 3-30:   Collected Data in ASCII text file

```
40-000-00,25
40-006-00,12
00-000-19,56
00-000-02,30
40-002-00,47
00-000-17,16
40-010-00,4
00-000-11,85
```

Using TRACKPRO   Use this application to record check-in and check-out of articles (supplies, books, files, tools, equipment, etc.) at one or more locations. **TRACKPRO** uses two prompts, one for location and one for item, looping at the second prompt until the user exits to record a new location ID An optional date/time stamp records exactly when each item is taken or returned.

To use **TRACKPRO**, complete the following steps:

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1. At the first screen, press the **<F3>** key to change the title or prompts that appears on the application's display screens. (Refer to for information on changing the prompts.)

Figure 3-31:   The Change Prompts Display

```
CHANGE PROMPTS?

F3=YES
F4=NO¤
```

- To use the current title and prompts, press the **<F4>** key.

2. At the next prompt, select **<F3>** to use the date/time stamp.

Figure 3-32:   The Add Date/Time Stamp Display

```
ADD DATE/TIME
STAMP?
F3=YES
F4=NO¤
```

- Otherwise, select **<F4>**.

Figure 3-33:   The Item Tracking Display

```
ITEM TRACKING¤
F2=COLLECT
F3=FILE OPTIONS
F5=EXIT
```

3. From the application menu, select **<F2>**.

Figure 3-34:   The QUANTITY Display

```
F1=CHECK IN
F2=CHECK OUT

F4=EXIT¤
```

4. Press the **<F1>** key to record an item being checked in.
   - Press **<F2>** to record an item being checked out.

5. Enter the identification code for the location (for example, **MAIN**).

6. Scan a bar code for the location or use the keypad to enter the ID code.

Figure 3-35:   The Location ID Code Display

```
LOCATION ID
¤
IN :
F3=REV F4=EXIT
```

● With a scanner, the code is entered automatically; with a keypad, press the **<ENTER>** key.

7. The **ITEM ID** prompt appears on the first line of the screen, and the location ID appears on the third line.

8. Scan the bar code for the item, or use the keypad to enter the item's ID number or description (for example, **P203**).

Figure 3-36:   The ITEM IDDisplay

```
ITEM ID
¤
IN :MAIN
F3=REV F4=EXIT
```

9. The location ID and item ID appear on the third line of the screen, separated by a comma. The **ITEM ID** prompt remains on the screen, and the portable is ready to accept another ID for an item at the current location.

Figure 3-37:   The Next ITEM ID Display

```
ITEM ID
¤
IN :MAIN,P203
F3=REV F4=EXIT
```

Note: *If the application is set up to add a date/time stamp, the date and time that the item was checked out will follow the item ID on the third line. (Scroll the display to see the entire line.)*

10. When finished collecting asset IDs for the location, press the **<F4>** key to return to the **LOCATION ID** prompt.

11. Repeat steps **5** through **10** until all the IDs for the assets at every location are collected.

12. Press the **<F4>** key again to return to the menu shown at step **4**.

13. To change from check-in to check-out (or vice versa), repeat step **4**.
    - Otherwise, press the **<F4>** key to return to the application menu.

The portable stores check-in data in one ASCII text file and check-out data in another file. When uploading one of the files to the PC, the data appears as a list. Each line in the list contains two fields separated by a comma. The first field is the **LOCATION ID**, and the second field is the **ITEM ID** When using the date/time stamp, each line also includes the check-in or check-out date and time. The list shown in Figure 3-38 is part of a check-out file uploaded from a portable that used **TRACKPRO** with the date/time stamp.

Figure 3-38: Collected Data in ASCII text file

```
MAIN,P203,03/01/98,10:27:18
MAIN,814223-001,03/01/98,10:27:45
MAIN,00-929-00,03/01/98,11:04:51
MAIN,P0009222,03/01/98,11:22:02
WHS,00-680-00,03/01/98,11:40:53
WHS,004322,03/01/98,11:40:57
WHS,16-000-00,03/01/98,11:41:11
WHS,A0039242,03/01/98,11:41:15
```

DESCRIPT

DESCRIPT (The Description Application) is another useful program for tracking inventory. You can use the application with item and description files that you create and load in advance. You can also add

to files or create them from scratch in the portable as you collect inventory data.

When you enter an item ID into the portable, the application checks the loaded item file for that entry. If the ID matches one in the file, the portable displays a description of the item (which it gets from the loaded description file) and prompts you for the number of individual units of the item. If the ID does not match one in the item file, the application allows you to add the ID and a description to the database.

The item and description files are simple ASCII text files consisting of singles lines of data. The lines in the two files correspond to each other; that is, the first line in the description file is the description of the item in the first line of the item file, the second line in the description file is the description of the item in the second line of the item file, and so on. Examples of the two types of files are shown below. The item file is on the left, and the description file is on the right.

00-629-02	PT DOCK MANUAL
00-667-00	PT2000 MANUAL
00-670-00	S10+ MANUAL
00-675-00	S20+ MANUAL
00-680-00	EASYWAND MANUAL
00-690-00	BC BASICS MANUAL
00-693-00	TOPGUN MANUAL
1-697-0	EASYKEY+ MANUAL

Note: *The two files must have exactly the same number of lines, even if some of the lines are blank.*

Loading Item and Description Files into the Portable

Note: ***For information about connecting a portable to your computer, see the user's guide for the portable. For information about*** PTFER ***and*** PDTFER ***file-transfer programs, see pages 73-80.***

1. At the screen displaying the program name, press any function key.

Figure 3-39: **DESCRIPT** Prompt

```
DESCRIPT
08:17:32█
05/01/02
F-KEY=CONTINUE
```

2. At the next screen, press the **<F1>** key to display the application menu.

Figure 3-40: Selecting **DESCRIPT**

```
F1=DESCRIPT
F2=WEDGE

F4=EXIT█
```

Note: ***For information about using the portable as a wedge, see "Using the Portable as a Keyboard Wedge" on page 21.***

3. From the application menu, select **<F2>**.

Figure 3-41: **DESCRIPT** Application Menu

```
F1=COLLECT
F2=RECEIVE LISTS
F3=FILE OPTIONS
F4=EXIT█
```

4. If item and description lists are already loaded in the portable, the screen shown at the right will be displayed. To replace a list, select

<F2> and go to step 5. To add new items to an existing list, select **<F3>** and go to step 8.

Figure 3-42: **FILE NOT EMPTY** Prompt

```
FILE NOT EMPTY
F2=ERASE
F3=APPEND
F4=EXIT█
```

5.   To erase the item and description lists that are currently loaded in the portable, select **<F2>**. The second line of the display screen will become blank, and the lists will be removed from the portable's memory.

Figure 3-43: **ERASE** Option

```
ERASE
F2=PICKLIST
F3=COLLECT
F4=EXIT█
```

6.   Press the **<F4>** key to return to the application menu, and select **<F2>**.

7.   From the Receive Lists menu, select **<F2>** to download the item list or **<F3>** to download the description list.

Figure 3-44: **RECEIVE LISTS** Menu

```
RECEIVE LISTS
F2=RECEIVE ITEM
F3=RECEIVE DESC
F4=EXIT█
```

8.   The next screen will prompt you to connect the portable to the computer. When you are sure the portable is connected properly, run the appropriate transfer program to download the list. (Use **PTFER** in Windows or **PDTFER** in DOS). Then select **<F3>** on the portable to transfer the file.

Figure 3-45: **CONNECT TO PORTABLE** Prompt

```
CONNECT FOR REC
ITEM LIST
F3=CONTINUE
F4=EXIT█
```

9. When the transfer is completed, the portable's screen will report on the number of records in the list in memory. Press the **<F4>** key to return to the **Receive Lists** menu.

Figure 3-46: **Results** Report

```
RESULTS

RECORDS=16█
F4=CONTINUE
```

10. To load another file, repeat steps 7 through 9. When both files are loaded, press the **<F4>** key to return to the application menu.

Using DESCRIPT

Note: To set a new date or time, see page 19.

1. At the screen displaying the program name, press any function key.

Figure 3-47: **DESCRIPT** Prompt

```
DESCRIPT
08:17:32█
05/01/02
F-KEY=CONTINUE
```

2. At the next screen, press the **<F1>** key to display the application menu.

Figure 3-48: Selecting **DESCRIPT**

```
F1=DESCRIPT
F2=WEDGE

F4=EXIT█
```

Note: For information about using the portable as a wedge, see the user's guide for the portable.

3. From the application menu, select **<F1>**.

Figure 3-49: **DESCRIPT** Application Menu

```
F1=COLLECT
F2=RECEIVE LISTS
F3=FILE OPTIONS
F4=EXIT█
```

4. The screen prompts you for an item identification. Scan the bar code for an item, or use the keypad to enter the item's ID number or description (for example, 00-693-00). (If you use a scanner, the code is entered automatically; if you use the keypad, you must press the **<ENTER>** key).

Figure 3-50: **ITEM ID** Prompt

```
ITEM ID
00-693-00█

F3=REV F4=EXIT
```

5. If the item ID matches an ID in the next item file, the portable displays the text from the corresponding line in the description file and prompts you for the number of units of the item.
    If there is no match for an item ID, the portable prompts you to reenter the item ID or add it to the item list. To add an item to the list, press the **<F3>** key.

Figure 3-51:   **ITEM ID** Match

```
QUANTITY
█
BCBASICS MANUAL
F3=REV F4=EXIT
```

The application adds the item ID to the item list and prompts you for a description of the item. Use the keypad to enter a description (for example, POCKET READER MANUAL). The application will add the description to the description file and prompt you for the number of units of the item.

Figure 3-52:   Entering Item Description

```
ENTER DESCRIPT
█
```

6. When you enter a number (for example, 50), the portable returns to the first prompt, ready to accept another item ID

7. When you are done collecting inventory data, press the **<F4>** key to return to the application menu.
    The portable stores the collected data in a single ASCII text file. When you upload the file to your computer, the data will appear as a list. Each line in the list will contain two fields separated by a comma. The first field is the item ID, and the second field is the number of units of that item. (The item descriptions are not included in the file). The list below is part of a data file uploaded from a portable that used **DESCRIPT** to collect data.

00-680-00, 46
00-667-00, 244
00-697-00, 90
00-693-00, 135
00-675-00, 19
00-629-02, 72
00-670-00, 159

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INVMODEM

INVMODEM (Inventory Application with Modem Option) works exactly like **INVPRO**. However, an additional feature lets you send the collected data to a computer over a modem.

To use this application, you should have experience with modem communications. You should know how to set up the modem for your system and how to use the communications software that runs it. If you are connecting to a bulletin board system, you should know how to log into the system.

Note: *For information about using the application, see page 29.*

Using the Modem Feature

Note: *The modem should be set up for transmission at either 2400 or 9600 baud with no parity, 8 data bits, 1 stop bit, and no date compression.* **INVMODEM** *uses Xmodem protocol for file transmissions.*

1. From the application menu, select **<F3>** for file options.

Figure 3-53: **INVMODEM** Application Menu

```
INV W/MODEM
F2=COLLECT
F3=FILE OPTIONS
F4=EXIT█
```

2. From the File Options menu, select **<F2>**.

Figure 3-54: Select **SEND FILE**

```
*FILE OPTIONS*
F2=SEND FILE
F3=ERASE FILE
F4=EXIT█
```

3.   Use a cable supplied by your PSC dealer to connect the portable to your modem, and select **<F3>** from the send file menu.

Figure 3-55: Select **MODEM**

```
*SEND FILE*
F2=SERIAL
F3=MODEM
F4=EXIT█
```

4.   Select **<F2>** to transmit the file at 2400 baud or **<F3>** to transmit it at 9600 baud.

Figure 3-56: Select **BAUD RATE**

```
SELECT BAUD RATE
F2=2400,N,8,1
F3=9600,N,8,1
F4=EXIT█
```

5.   Enter the telephone number to dial. Be sure to use the format that your modem requires. (For example, you may need to use "9," as a prefix for the number). When you press the **<ENTER>** key on the keypad, the application connects to the modem and calls the number.
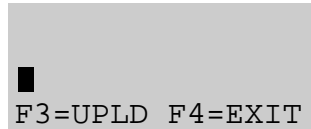
Figure 3-57: Entering the telephone number

```
NUMBER TO DIAL
█


F4=EXIT
```

6.   When the modem connects to the remote computer, two-way communications between the portable and the computer is established. Use the portable to enter the commands you need to prepare the computer to receive a file.

7. When the computer is ready, press the **<F3>** key on the portable to begin the file transmission.
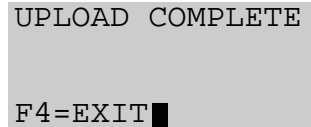
Figure 3-58: Begin File Transmission

```
█
F3=UPLD F4=EXIT
```

8. When the transmission is completed, the application displays a message. Select **<F4>** to return to the previous screen.

Figure 3-59: Return to Previous Screen

```
UPLOAD COMPLETE


F4=EXIT█
```

9. Select **<F4>** to hang up the modem and return to the application menu.
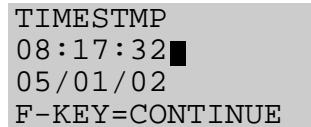
TIMESTMP

TIMESTMP (The Time-Stamp Application) is a simple item-tracking program that records the date and time that each item is entered into the portable.

Using TIMESTMP

1. At the screen displaying the program name, press any function key.

Figure 3-60: **TIMESTMP** Application Menu

```
TIMESTMP
08:17:32█
05/01/02
F-KEY=CONTINUE
```

2. At the next screen, press the **<F1>** key to display the application menu.

Figure 3-61: **TIMESTMP** Menu

```
F1=TIME STAMP
F2=WEDGE
F3=SET TIME
F4=EXIT█
```

Note: For information about using the portable as a wedge, see "Using the Portable as a Keyboard Wedge" on page 21.

3.   From the application menu, select **<F2>**.

Figure 3-62:   Select **COLLECT**

```
TIME STAMP
F2=COLLECT
F3=FILE OPTIONS
F4=EXIT█
```

4.   Scan the bar code for an item, or use the keypad to enter the item's ID number or description (for example, 00-693-00). (If you use a scanner, the code is entered automatically; if you use the keypad, you must press the **<ENTER>** key).

Figure 3-63:   Enter the **ITEM ID**

```
ITEM ID
00-693-00█

F3=REV F4=EXIT
```

The item ID appears on the third line of the screen, followed by the date and time, and the portable is ready to accept another item ID

Figure 3-64:   Enter Additional **ITEM ID**s

```
ITEM ID
█
00-693-00,05/01/
F3=REV F4=EXIT
```

5.   Repeat step 4 until you have collected IDs for all items. Then press the **<F4>** key to return to the application menu.

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The portable stores the collected data in a single ASCII text file. When you upload the file to your computer, the data will appear as a list. Each line in the list will contain the ID for a single item, followed by the date and time that the item ID was entered in the portable. The list below is part of a data file uploaded from a portable that used **TIMESTMP** to collect data.

```
40-000-00, 05/01/95, 10:27:18
40-002-00, 05/01/95, 10:27:45
40-006-00, 05/01/95, 11:04:51
40-010-00, 05/01/95, 11:22:02
00-000-17, 05/01/95, 11:40:53
00-000-19, 05/01/95, 11:40:57
00-000-02, 05/01/95, 11:41:11
00-000-11, 05/01/95, 11:41:15
```

Changing the Date and Time Setting

1. From the application menu, select **<F3>**.

Figure 3-65: **TIMESTMP** Application Menu

```
F1=TIMESTMP
F2=WEDGE
F3=SET TIME
F4=EXIT█
```

2. If the displayed date is correct, press the **<ENTER>** key. If the date is wrong, enter the correct date. Use two digits each for the month, for the day, and for the year (e.g., 11, 04, 95). The program will automatically format the entry (e.g., 11/04/95).

Figure 3-66: Entering the Correct Date

```
CURRENT DATE
05/01/02
ENTER NEW DATE:
█
```

3. If the displayed time is correct, press the **<ENTER>** key. If the time is wrong, enter the correct time. Use two digits each for the

hour, for the minute, and for the seconds (e.g., 133000). If the portable's system clock is set for 12-hour format, type A for A.M. or P for P.M. after the number (e.g., 013000P).

Figure 3-67:   Entering the Correct Time

```
CURRENT TIME
8:17:32
ENTER NEW TIME:
█
```

Reviewing the Collected Data

Before uploading collected data, review it on the portable and delete incorrect or unnecessary records.

Note: ***When used as a keyboard wedge, the portable does not store any data.***

1.   From any screen that offers **REV** as an option, select **<F3>** to display the data-review screen (refer to).

Figure 3-68:   Sample Screen Showing the REV Option

```
ITEM ID
¤

F3=REV F4=EXIT
```

● The last data that was input is displayed on the third line of the screen.

- If the record includes a quantity, the quantity is given after a comma at the end of the line.
- The second line of the data-review screen tells the number of the currently displayed record and the total number of records. The top line of the data-review screen offers options for moving through the records in memory.

Figure 3-69:   Data-review screens

```
F1=PREV F2=NEXT
REC#65 OF 65
27-000-00
F3=DEL F4=EXIT
```
Item-only data

```
F1=PREV F2=NEXT
REC#65 OF 65
27-000-00,15
F3=DEL F4=EXIT
```
Item-and-quantity data

2. Press the **<F2>** key to move to the next record.
   - If the currently displayed record is the last one, the portable will briefly display **END OF FILE** on the second line.

3. Press the **<F1>** key to move to the previous record.
   - If the currently displayed record is the first one, the portable will briefly display **START OF FILE** on the second line.

4. The bottom line of the screen offers options for deleting records and returning to the data-collection screen.
   - To delete the currently displayed record, press the **<F3>** key. The message **ARE YOU SURE?** appears on the first line of the screen.
   - To delete the record, press **<F3>** again; to cancel, press **<F4>**.

5. When finished reviewing the data records, press **<F4>** once to return to the data-collection screen or twice to return to the application menu.

Uploading Data to the Host PC

The PT2000 and TopGun store data records in files in random-access memory (RAM). When finished collecting data in a file, transmit (upload) that file from the portable to the host PC. The number of records that can collected before uploading depends upon the amount of RAM the portable has.

Note: ***Refer to*** Appendix D ***on*** page 107 ***for instructions to connect the PT Dock to a PC.***

The portable can be connected to the host PC in either a serial configuration or a keyboard wedge configuration. The serial configuration requires a communications program to transfer data to and from the portable. With this configuration, use an external 9-volt power adapter (available from a PSC dealer). With the keyboard wedge configuration, power is drawn from the host PC.

Serial Configuration

Use a PSC 25-pin cable or a PSC 9-pin cable for serial configuration.

Note: ***Only use cables approved for this application. For a listing of PT2000 cable numbers, consult the PSC Price Book at:*** http: www.pscnet.com***.***

Complete the following steps to attach the cable:

1. One of the connectors on the cable has the cable number on it. Plug that connector into the cable input jack on the bottom of the portable.

2. Attach the other end of the cable (with the connector labeled **computer**) to an available serial port on the PC.

3. To use a 9-volt power adapter, attach the small, round plug of the adapter to the round power input jack on the cable connector labeled **computer**.

4. Plug the other end into an outlet or power strip.

> ***Note:*** ***Use only a PSC power adapter. Using another adapter can damage the portable.***

The portable is set at the factory with the following parameter settings for serial communications. For explanations of these parameters, refer to Serial Parameters, beginning on . To change the parameter settings, use the bar codes in on .

Parameter	Default Setting
Baud rate	9600
Data bits	8
Parity	None
Stop bits	1
Enable Xon/Xoff	Off
Linefeed	None
Protocol	ACK/NAK
Timeout	1 second

To upload data to the computer, complete the following steps:

1. Prepare the computer to receive data by using one of the software programs described in Transferring Data With PSC Utilities on .

Figure 3-70: Inventory Management Menu

```
INV MGMT¤
F2=COLLECT
F3=FILE OPTIONS
F5=EXIT
```

PT2000™ & TopGun™

2. From the program menu on the PT2000 or TopGun (such as the one from **INVPRO** shown in), select **<F3>** to display the **File Options** menu.

Figure 3-71: The File Options Menu

```
*FILE OPTIONS*
F2=SEND FILE
F3=ERASE FILE
F4=EXIT¤
```

3. Select **<F2>** to display the **Send File** menu.

Figure 3-72: Send File Menu

```
*SEND FILE*
F2=SERIAL
F3=WEDGE
F4=EXIT¤
```

4. Select **<F2>** to upload the data through the serial connection.

Keyboard Wedge Configuration

To upload data from the portable installed as a keyboard wedge, complete the following steps:

1. Connect the portable to the PC as described on on .

Figure 3-73: Asset Management Menu

```
ASSET MGMT¤
F2=COLLECT
F3=FILE OPTIONS
F5=EXIT
```

2. Open the PC application and place the cursor at the location where data is to be entered.

3. From the program menu on the PT2000 or TopGun (such as the one from **ASSETPRO** shown above), select **<F3>** to display the **File Options** menu.

Figure 3-74:   File Options Menu

```
*FILE OPTIONS*
F2=SEND FILE
F3=ERASE FILE
F4=EXIT¤
```

4. Select **<F2>** to display the **Send File** menu.

Figure 3-75:   Send File Menu

```
*SEND FILE*
F2=SERIAL
F3=WEDGE
F4=EXIT¤
```

5. Select **<F3>** to upload the data through the keyboard wedge connection.

Removing Collected Data from Memory

After uploading a file from the PT2000 or TopGun to the PC, erase the file from the portable's memory. To do so, complete the following steps:

Figure 3-76:   Item Tracking Menu

```
ITEM TRACKING¤
F2=COLLECT
F3=FILE OPTIONS
F5=EXIT
```

1. From the program menu on the PT2000 or TopGun (such as the one from **TRACKPRO** above), select **<F3>** to display the **File Options** menu.

Figure 3-77:   File Options Menu

```
*FILE OPTIONS*
F2=SEND FILE
F3=ERASE FILE
F4=EXIT¤
```

2. Select **<F3>** to display the **Erase File** menu.

Figure 3-78:   Erase File Option

```
*ERASE FILE*

F3=ERASE
F4=EXIT¤
```

3. Press the **<F3>** key to erase the file.

Turning Off the Portable

Turn the PT2000 or TopGun off by pressing the green **<I/O>** button displayed at left. This will turn off the screen display, but it will not clear any information in the portable's random-access memory (RAM).

The portable is programmed to shut itself off automatically if it is not used for ten minutes. Change the **auto-off** time by scanning the appropriate bar code on .

Resetting the Portable

To reset the PT2000 or TopGun, remove the battery pack, alkaline batteries, or external power supply. Then press and hold down the **<Alpha>** and **<ENTER>** keys while reinserting the batteries or reconnecting the power supply. The portable will prompt to enter the current date and time.

Caution: *Resetting the PT2000 or TopGun is similar to pressing* **<Ctrl>+<Alt>+<Delete>** *on a PC. All data stored in the portable's memory will be cleared.*

Or, reset the PT2000 by scanning the following bar code:

Reset

Care and Cleaning

With normal use, the PT2000 or TopGun should require no maintenance. If it gets dirty, wipe it with a damp cloth.

Caution: **Do not immerse the portable in liquid.**

Caution: **Do not use any abrasive cleaners on the display screen.**

4

Programming the PT2000 and TopGun

TopGun and the PT2000 are configured with certain default parameter settings before they are shipped from the factory. These settings will work for many applications. Change the settings by scanning the bar codes provided in this chapter and in Appendix G, Programming Bar Codes, on page 127 or by creating bar codes for specific settings. Or, download new programs to the portable from DOS or Windows.

Overview

PT2000 and TopGun recognize the following commands at all times:

Sets the portable to alpha mode

Sets the portable to normal mode

Has the same effect as the **<Clear>** key

Has the same effect as the **<BKSP>** (backspace) key

Prepares the portable to accept a program

Sounds a low beep on the portable

Sounds a high beep on the portable

Clears all memory and resets the portable

Retrieves data if the application program stops execution and gives the **PROGRAM FAILED** message. Connect the portable to the PC and start the communications program, then scan this bar code. The data will transmit, one file at a time.

Enter these commands with bar codes or through the PC's serial port. With PSC Program Generator (PPG), it is possible to embed these codes in a PPG program. For information about using PPG to program the portable, refer to the *PSC Program Generator User Manual.*

Using Programming Utilities

The PSC portable comes with a collection of applications and utilities on a disk. This collection is called the Portable Applications Library, or PAL. Two of the utilities, **PDPROG** and **PERCPROG**, enable programming of the portable from DOS or Windows.

> ***Note:*** ***For complete information about PAL, including installation instructions, refer to the*** **Falcon Portable Applications Library (PAL) User's Guide.**

Both programming utilities check the version number of the portable's operating system. If it is different from the PAL version, it installs the operating system along with the application.

PERCPROG

PERCPROG is the utility used to program a PSC portable through Windows.

To customize the installation of an application, complete the following steps:

1. Connect the portable to the PC (refer to page 18 for information on getting started.).

2. Double-click on the **Portable Programmer** icon in the PSC PAL program group. The PSC **Portable Programmer** window will open (refer to Figure 4-1).

> ***Note:*** ***The figures in this chapter show the utilities in Windows 95. When using a different version of Windows, the utility windows may look slightly different.***

Figure 4-1: The PSC Portable Programmer (PERCPROG) Main Window

3. From the menu, select **Options > Settings**. The **Communications Settings** window will open (refer to Figure 4-2).

Figure 4-2: The Communications Settings window
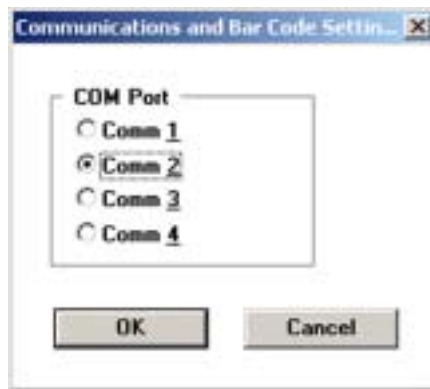
4. Select the desired serial port. Then select **OK**.

Note: *After changing the serial port setting, PERCPROG will keep the new setting until it is changed again. Use the icons in the PSC PAL program group (Windows 3.1) or the Start Menu (Windows 9x) to install an application.*

5. From the PSC **Portable Programmer** menu, select **File > Open**. The **Program File** window will open (refer to Figure 4-3).

Figure 4-3:   The Program File window
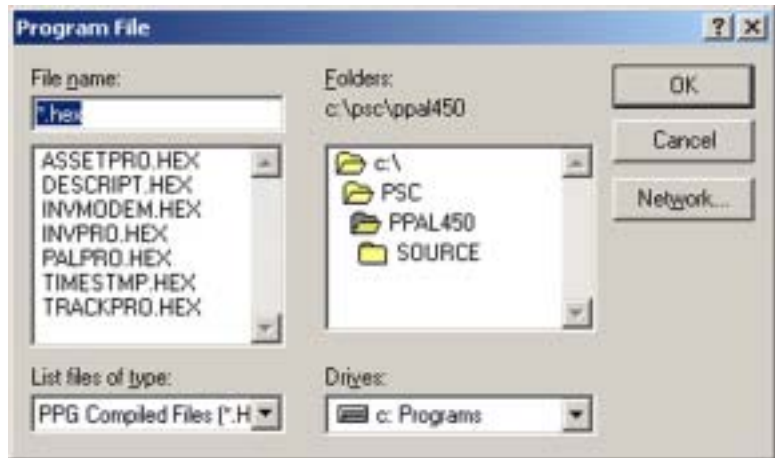
6.   Select the application to be installed in the portable, and click **OK**.
   - The message **Programming the portable** will appear in the
     programmer window. Additional messages and the percentage
     of completion will be displayed as the programming
     progresses.
   - When programming is completed, the message **Portable
     successfully programmed** will appear in the window, and the
     name of the program file will be displayed in the window's
     title bar.

7.   Select **File > Exit** to close the PSC **Portable Programmer** window.

PDPROG

PDPROG is the utility used to program a PSC portable through DOS.

Using PDPROG involves entering commands on the DOS command line. The command line syntax is as follows:

pdprog filename[.hex] [-¦/][port]

where

filename = the name of the file for the application to install in the portable (The file has a .hex extension. Do not include the extension in the command line.)

port = **1¦2¦3¦4** to specify the serial port (default=COM2)

The port setting is optional and can be entered either before or after the file name. If used, precede it with a hyphen (–) or a slash (/).

For example, use the command **pdprog descript -1** to transfer the description program to a portable over the COM1 serial port.

Using Predefined Defaults

TopGun and the PT2000 have the following three sets of parameter defaults:

Predefined Default 0 (D0) : turns every on/off parameter off and sets all minimum and maximum lengths to zero.

Predefined Default 1 (D1): turns every on/off parameter on, sets all minimum lengths as low as possible, and sets all maximum lengths as high as possible.

Predefined Default 2 (D2) : is the default set that was installed in the portable at the factory. This default set will work for most applications.

> ***Note:*** ***To restore the default settings for serial communications, scan Serial Communications Parameter (default) bar code on*** ***.***

Reset the portable to a predefined default set by scanning one of the following bar codes:

D0

* $ + $ - D 0 E E *

D1

* $ + $ - D 1 E E *

D2

* $ + $ - D 2 E E *

Using Bar Codes

To program the PT2000 and TopGun, scan Code 39 bar codes that contain the desired parameters and settings. Appendix G on provides several programming bar codes. Custom bar codes can be made using any bar code printing software that supports Code 39.

Guidelines for Creating Programming Bar Codes

Keep the following in mind when creating bar codes for programming the portable:

- Create custom programming bar codes using the standard Code 39 character set, *not* the extended (full ASCII) Code 39 character set. (However, bar codes must be read using extended Code 39.)
- The first and last character of each bar code must be an asterisk (`*`), the start and stop character for Code 39.
- The first asterisk of the programming bar code must be followed immediately by the characters `$+$-`.
- The programming bar code must end with `EE` and an asterisk. The portable will treat multiple bar codes of programming information as one entry as long as `*$+$-` appears at the beginning of the first bar code and `EE*` does not appear until the end of the last bar code.

Scanning the following sample bar code will enable Code 39 scanning and set the maximum length for Code 39 to 35 characters:

Enable Code 39; set max length to 35 characters

‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
`* $ + $ - 0 0 1 0 2 3 5 E E *`

Note: ***The human readable portion of the barcode symbol, as shown here and elsewhere in this manual is optional and not required for scanning purposes.***

Like all Code 39 bar codes, this sample starts and ends with an asterisk (`*`). `$+$-` starts programming mode. `00` is the ID number for the parameter that enables Code 39, and `1` turns it on. `02` specifies the Code 39 maximum-length parameter, and `35` sets it to 35 characters per label. `EE` saves the new settings and exits programming mode.

Using Multiple Bar Codes

Create multiple bar codes to program the portable. After making the settings in the first bar code (which must begin with `*$+$-`), the portable waits for additional programming bar code entry if the first bar code does not include `EE*`. Scanning the following two bar codes provides the same result as scanning the single one on :

*$+$-

```
* $ + $ - 0 0 1 *
```

EE*

```
* 0 2 3 5 E E *
```

Commands cannot be split between two or more bar codes. It is not possible to have a parameter ID number at the end of one bar code and its setting or string at the beginning of the next.

General Programming Parameters

Table 4-1 describes some of the general parameters for programming the PT2000 or TopGun. For descriptions of serial parameters, refer to Table 4-2. For a complete list of parameters and defaults, refer to Appendix A.

Table 4-1:   Selected Programming Parameters

ID #	Parameter	Description
05	Code 39 full ASCII	Supports the Code 39 extended ASCII character set (refer to Appendix B on page 93). For example, a character string encoded in Code 39 as +A is transmitted as a lowercase *a*. This allows every key of the keyboard to be encoded in a Code 39 bar code.
06	Code 39 accumulate	Treats multiple bar codes as a single bar code, provided that all bar codes except the last begin with a space. The last code must *not* begin with a space. Up to 128 characters (not including preamble, postamble, and symbology identifiers) can be accumulated before transmission.
0B	I 2 of 5 enable checksum	Enables use of checksums in Interleaved 2 of 5 bar codes. This parameter should be set to **On** to read Interleaved 2 of 5 bar codes.
33, 36	UPC conversion	Converts UPC-A bar codes to EAN-13 (ID #33), and converts UPC-E bar codes to UPC-A (ID #36).
3B–3E	UPC/EAN/ JAN extensions	Reads two-digit (ID #3C) and five-digit (ID #3D) extensions if the portable is programmed to allow them (ID #3B). Doesn't read UPC, EAN, or JAN bar codes if the portable is programmed to *require* extensions (ID #3E) and no extensions are present.

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Setting the Hour Format, Time, and Date

Time: Turn parameter ID D8 on to set the portable's real-time clock display to 24-hour (military-style) format. When this parameter is set to **Off**, the time is displayed in 12-hour format. The default time display is 24-hour format. Use the 12- and 24-hour bar codes to change the format. To set the time on the portable's clock, scan the **Time** bar code.

Date: Turn parameter ID D9 on to set the portable's date display to international format (day/month/year) or off to set it to U.S. format (month/day/year). The default format is U.S. Format. To set the date in the portable, scan the **Date** bar code. Use the **International** Format bar codes to change the format.

12-Hour Format

```
* $ + $ - D 8 0 E E *
```

24-Hour Format

```
* $ + $ - D 8 1 E E *
```

Time

```
* % - *
```

Date

```
* % . *
```

U.S. Format

```
* $ + $ - D 9 0 E E *
```

International Format

```
* $ + $ - D 9 1 E E *
```

Use the portable's keyboard to enter the hour, time and date in the current format.

> ***Note:*** ***When finished setting the date and time formats, press any function key to return to the program.***

Serial Parameters

Use bar codes to set parameters for using the PT2000 or TopGun as a serial device. Table 4-2 describes the serial parameters; bar codes for setting them begin on Serial Parameters on page 143. (For a complete listing of parameters and defaults, refer to Appendix A.)

This section also includes a table of Code 39 and ASCII equivalents for serial characters (refer to Table 4-3 on page 70). Use the Code 39 equivalents when creating bar codes for programming.

Table 4-2: Serial Parameters

ID #	Parameter	Description
C1	Baud rate	Determines the communication speed. The setting for the portable must match the setting that the host computer uses.
C2	Data bits	Specifies the number of data bits in each character.
C3	Parity	Specifies the parity of the data characters.
C4	Stop bits	Selects the minimum space between data characters.
C5	Xon/Xoff handshaking	Used for software data-flow control. With this option enabled, the portable transmits an Xoff character when its serial input buffer has fewer than ten characters of free space. Once all the data in the serial buffer is processed, the portable transmits an Xon character.

Xmodem Protocol

The PT2000 and TopGun support the Xmodem (checksum) file-transfer protocol for serial communication, which is available in many commercially marketed products.

Xmodem is a simple send-and-wait-for-response protocol using a fixed-length data field. The data field is embedded in an Xmodem packet, which also contains a packet number and a single-byte arithmetic checksum. The protocol link is established by the receiver transmitting a NAK character until the sender responds. The sender responds by transmitting an Xmodem packet. The sender then waits for either an ACK signal, in which case it transmits the next packet, or a NAK signal, in which case it retransmits the packet. Once all packets are transmitted, the sender transmits an EOT signal, indicating the end of transmission.

Scan the following bar code to set a portable to use the Xmodem protocol:

**XModem
protocol**

*$ + $ - C A Q 2 E E *

Code 39 and ASCII Equivalents for Serial Characters

Table 4-3 provides Code 39 and ASCII equivalents for serial characters. For Code 39, ASCII, and mnemonic equivalents of keyboard keys, refer to Appendix B.

Table 4-3: Code 39 and ASCII Equivalents for Serial Characters

Character	Code 39	ASCII Value	Character	Code 39	ASCII Value
NUL	%U	80	DLE	$P	10
SOH	$A	01	DC1	$Q	11
STX	$B	02	DC2	$R	12
ETX	$C	03	DC3	$S	13
EOT	$D	04	DC4	$T	14
ENQ	$E	05	NAK	$U	15
ACK	$F	06	SYN	$V	16
BEL	$G	07	ETB	$W	17
BS	$H	08	CAN	$X	18
HT	$I	09	EM	$Y	19
LF	$J	0A	SUB	$Z	1A
VT	$K	0B	ESC	%A	1B
FF	$L	0C	FS	%B	1C
CR	$M	0D	GS	%C	1D
SO	$N	0E	RS	%D	1E
SI	$O	0F	US	%E	1F
			Terminate string: //		

5

Transferring Data
With PSC Utilities

Overview

After scanning a series of bar codes or inputting other data into the PT2000 or TopGun, use a data-transfer utility to upload the information to the host computer.

> ***Note:*** ***To launch Windows applications, select menu options, use dialog boxes, or refer to Microsoft Windows documentation.***

Both the PT2000 and TopGun come with PSC's ***Portable Applications Library (PAL)*** on a disk. PAL includes two programs to transfer data between the portable and a PC:

PTFER Windows application. (Refer to .)

PDTFER DOS program that runs by issuing commands on the DOS command line. (Refer to .)

> ***Note:*** ***PSC also provides two utilities MACTFER and UPDTFER for transferring data to and from Macintosh or UNIX workstations. These utilities are free from PSC for your convenience, however their use is at your own risk, and not supported by PSC Technical support. Go to the PSC website at*** www.pscnet.com ***> Support > Software Updates > PT2000/ TopGun to download the most current transfer program. Refer to*** Technical Support ***on*** ***for more information.***

MACTFER Macintosh program used to communicate via 8-pin DIN ADB (not USB) with a Macintosh. (Refer to .)

UPDTFER UNIX program used to communicate with a UNIX workstation. (Refer to .)

After collecting data with the portable, use one of these programs to transfer the data to an ASCII file on the PC.

Using Portable File Transfer Program (PTFER)

Installing & Setting up PTFER

To prepare for a data transfer between the PC and the PT2000 or TopGun, complete the following steps:

1. If the utility software is not already installed on the PC, install it following the instructions included with the diskette packaged with the portable.

2. In Windows, click on the **Portable File Transfer** (**PTFER**) icon in the PSC program group to get a blank **PTFER** window (refer to Figure 5-1).

> *Note:* ***The figures in this chapter show the utilities in Windows 95. When using a different version of Windows, the utility windows may look slightly different.***

Figure 5-1:   The PSC Portable File Transfer window

3. By default, **PTFER** uses the following communications settings:

Port	`COM2`
Baud rate	`9600`
Stop bits	`1`
Data bits	`8`
Parity	`None`
Protocol	`ACK/NAK`

    These are also the default settings for the PT2000 and TopGun. Scan the following bar code to set the portable's serial communications parameters to these defaults:

    Serial Communication parameters (defaults)

    ‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖‖
    * $ + $ - C 8 E E *

    To switch to a different port or make other changes to the defaults, refer to "<u>Changing Settings</u>," on <u>page 76</u>.

4. Select **Options >Connect** (or click on the **Connect** button in the **Communications Settings** dialog box) to connect with the selected port.

5. The message **Communications port opened** appears in the window. It is now possible to transfer files between the PC and the portable.

Uploading a File

To upload a file from the PT2000 or TopGun to the PC:

1. Select **File > Receive** and use the **File to Receive** dialog box (refer to <u>Figure 5-2</u>) to specify the name and location of the file to store the data in.

Figure 5-2: The File to Receive dialog box
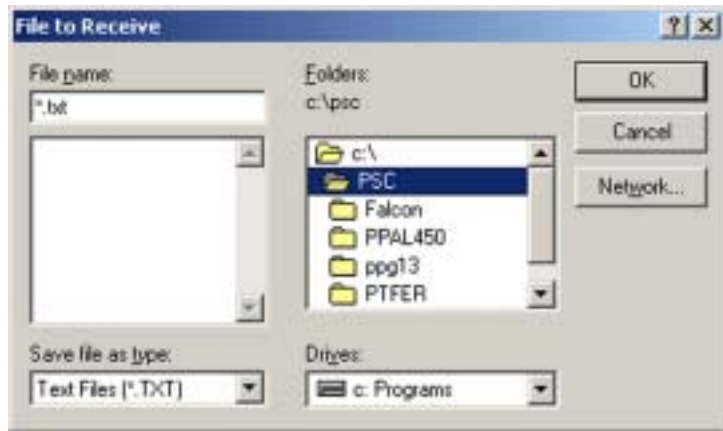
2. **PTFER** displays a message saying that it is expecting the file (refer to Figure 5-3).

3. Make the appropriate selections on the portable to upload the data into the specified file on the PC (refer to page 49).

Figure 5-3: The PTFER window during an upload

Note: If no success message appears, select a different port.

4. When the file has been successfully transferred, a message appears in the **PTFER** window.

Downloading a File

To send a file from the PC to the PT2000 or TopGun:

1. Prepare the portable to receive a file.

Note: *Refer to the information about the DESCRIPT application on Page 35.*

2. Then select **File > Send** from the **PTFER** menu.

3. Specify the name and location of the file in the **File to Transmit** dialog box. (Except for the title bar, the **File to Transmit** dialog box is identical to the **File to Receive** dialog box, shown in Figure 5-4.)

4. When the file has been successfully transferred, a message appears in the **PTFER** window.

Changing Settings

By default, **PTFER** uses the PC's COM2 port for communicating with the portable.

If the COM2 port is already in use by a modem, mouse, or other device, specify a different port or alter the communications settings for the port.
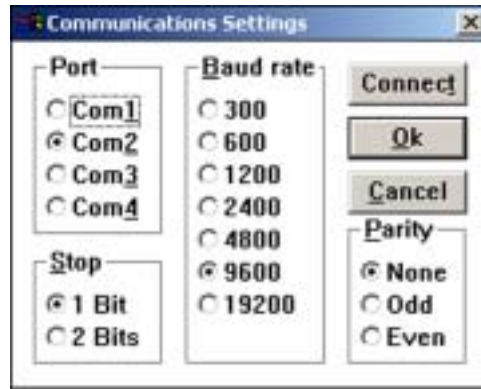
Note: *When not sure what settings to use, leave them at the defaults. To restore factory defaults, scan the bar codes in* Predefined Defaults on page 128

To use a different port or to alter port settings:

1. Select **Options > Settings** from the **PTFER** menu to receive the **Communications Settings** dialog box (Figure 5-4).

Figure 5-4:   The Communications Settings dialog box

Note: **When a connection has been made to the serial port, the** Settings **option is dimmed on the menu and cannot be selected. Select** Options > Connect **again to disconnect the application, and then select** Options > Settings **again.**

2. To use a different COM port, select it in the **Port** options group.

3. Use this dialog box to switch baud rate, the number of stop bits, and the type of parity. (Use the settings which match the settings used in the PT2000 or TopGun.)

4. When finished, click on the **Connect** button to connect to the port, or select **OK** and then use the **Connect** command in the menu to make the connection.

Setting Command Line Options

Note: ***In Windows 3.x, the command is in the*** Command Line ***input box in the application's*** Program Item Properties ***window in the*** Program Manager. ***In Windows 95, create a shortcut to the application. (The Desktop is a good place to put the shortcut.) Find the command in the*** Target input ***box on the*** Properties ***tab of the shortcut's*** Properties ***window.***

Change settings for the **Portable File Transfer** program ***before*** starting the program by entering options for the command that starts it. Type the options using the following syntax:

```
ptfer filename [-¦/][Pn][Bn][Dn][action]
```

where

filename = the name of the file to transfer (include the extension)

Pn = the number of the COM port to be used (**1**, **2**, **3**, or **4**; the default setting is **P2**)

Bn = the baud rate to use (the default setting is **B9600**)

Dn = the timeout period, in seconds (the default is 30 seconds on receive and 1 second on transmit)

action = **A** to receive data and append it to the existing file

C to connect automatically when transmitting or receiving

E to echo the display to the screen

H to display on screen help

M to maximize the **PTFER** window

N to minimize the **PTFER** window

On n n to set the size and position of the PTFER window

R to receive data from the portable and replace the existing file contents

S to display the line count in the title bar

T to transfer data to the portable (the default)

X to exit automatically after data is transmitted or received

---

The port, baud rate, timeout, and action parameters are optional. If using one or more parameters, precede them with a hyphen (`-`) or a slash (`/`). Enter parameters either before or after the file name.

For example: the command `ptfer link.txt /P1` would send the file named `link.txt` over COM1 to the portable (the default action, `T`, is assumed). The command `ptfer -3r data.txt` would upload data from the portable over COM3 into a file named `data.txt`.

The port, baud rate, and position and size settings are saved to and restored from the initialization file.

Using PDTFER

Instead of using the **PTFER** application in Windows, transfer files to and from the PT2000 or TopGun using commands on the DOS command line.

The command line syntax for transferring files with **PTFER** is as follows:

> **pdtfer** *filename* **[-¦/][*port*][B*n*][D*n*][*action*]**

where

filename = the name of the file to transfer (include the extension)

port = the number of the COM port to use (**1**, **2**, **3**, or **4**; the default setting is **2**)

> **Bn** = the baud rate to use (the default setting is **B9600**)
>
> **Dn** = the timeout period, in seconds (the default is 30 seconds on receive and 1 second on transmit)

action = **A** to receive data and append it to the existing file
> **E** to echo the display to the screen
> **H** to display on screen help
> **R** to receive data from the portable and replace the existing file contents
> **T** to transfer data to the portable (the default)

The port, baud rate, timeout, and action parameters are optional. When using one or more parameters, precede them with a hyphen (**-**) or a slash (**/**). Enter parameters either before or after the file name.

For example, the command **pdtfer link.txt /1** sends the file named **link.txt** over COM1 to the portable (the default action, **T**, is assumed). The command **pdtfer -3r data.txt** would upload data from the portable over COM3 into a file named **data.txt**.

> *Note:* ***Files must be transferred to or from the current DOS directory.***

Using MACTFER

Use the **MACTFER** program to transfer data between a PT2000 or TopGun and a Macintosh. Only one cable is required to connect the portable to a Macintosh. (Contact a PSC dealer to order.)

To transfer data using the **MACTFER** program, complete the following steps:

1. Copy the `mactfer.exe` file from the supplied floppy disk to the Macintosh hard drive.

2. Scan the following bar code to make sure the portable's serial communications parameters are set to the defaults:

   Serial Communication parameters (defaults)

   * $ + $ - C 8 E E *

3. Connect the Macintosh cable to the PT Dock.

4. Connect the other end of the serial cable to the cable input jack on the bottom of the portable.

5. Plug the mini-DIN end of the Macintosh cable into the Macintosh modem port. The modem port is marked: 📞

6. Start the **MACTFER** program on the Macintosh. An untitled window appears for displaying received or transferred data.

7. To upload a file from the portable to the Macintosh, select **File > Receive** and use the **Receive File** dialog box to specify the name and location of the file to store the data in. Then select options on the portable to upload the data into the specified Macintosh file.

Note: *Copy received data to other applications using the* **Edit > Copy** *command.*

8. To send a file to the portable, select **File > Send** and specify the name and location of the file in the **Send File** dialog box. To accept the transferred file, the portable must be programmed to accept serial input and store it in a file or register. Depending on the program, it may be necessary to select some options on the portable first.

Using UPDTFER

Use the **UPDTFER** program to transfer data between a PT2000 or TopGun and a UNIX workstation. The **UPDTFER** program transmits and receives data to or from the portable using PSC's ACK/NAK protocol.

> *Note:* ***Refer to the PSC website at*** www.pscnet.com *> Support > Software Updates > PT2000/TopGun **to download the UNIX transer file (UNIXUPLD.zip unzips to UPDTFER.exe).***

To install the program, use the UNIX `tar` command to copy the **UPDTFER** file from the supplied floppy disk or website download to the UNIX workstation's hard drive.

Use the following command syntax to transfer files with updtfer:

        updtfer *device filename -options*

where

    `device` = the serial port device name, such as /dev/tty1a

    `filename` = the name of the file to transfer

    `options` = one or more transfer options, preceded by a hyphen (`-`)

Use any of the following options:

    `t`   transmits data in the given file to the portable. The portable should be properly connected to the specified serial port and ready to receive data.

    `r`   receives data from the portable and stores it in the given file. When receiving data from the portable, start **UPDTFER** before invoking the transfer on the portable.

    `a`   appends the given file with data received from the portable.

    `d`   displays debugging information on the screen during transfer.

s performs the transfer "silently" (without displaying received data on the screen).

h displays help on program usage and options.

For example: `updtfer /dev/tty2a readin.dat -r` would receive data from a portable connected to a serial port named /dev/tty2a and place data in a file named `readin.dat`.

The **UPDTFER** program has the following settings. The portable's communications settings must match.

- **Baud rate**: `9600`
- **Stop bits**: `1`
- **Data bits**: `8`
- **Parity**: `None`
- **Flow control**: `ACK/NAK`;   no `XON/XOFF`

The **UPDTFER** program returns an exit status of 0 if the transfer is successful. If the transfer is unsuccessful, it returns a nonzero status, such as 1.

A

Programming Parameters

Overview

> **Note:** **For information about programming, refer to** .

This appendix provides information about all programmable settings for the PT2000 and TopGun.

- lists programming ID numbers for predefined defaults (refer to).
- lists save-and-exit settings (refer to).
- provides the following information (refer to):

> **Note:** **For explanations of some general programming parameters, refer to** **. For explanations of serial parameters, refer to** **.**

Code Parameter : is the "human" name for programming options.

ID # : is the "portable" name for programming options. For example, to set a Code 39 minimum label length, enter **01** when programming the portable. Programming ID numbers given in this appendix can be used with all programming methods.

Type : tells what kind of setting to use for each code parameter:

On/Off : is a toggle. **1** turns the parameter on, and **0** turns it off.

Value : requires a two-character entry (e.g., **02** for two beeps after each good read, or **05** for a length of five).

String : uses one or more ASCII characters, followed by **//** to indicate the end of the string.

Immediate : takes effect as soon as the ID number is entered.

Acceptable Input : gives the settings or range of settings that you can use for each code parameter.

Predefined Defaults : tells how the parameter is set when you select predefined default D0, D1, or D2 (refer to page 87).

- Table A-4:, beginning on page 91, lists parameter settings for serial communications.

Table A-1: Predefined Defaults

Setting	ID #	Type
Predefined default set 0	D0	Immediate
Predefined default set 1	D1	Immediate
Predefined default set 2	D2	Immediate
Predefined serial defaults	C8	Immediate

Table A-2: Save-and-Exit Settings

Setting	ID #	Type
Save and exit	EE	Immediate
Exit only, no save	EF	Immediate

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Table A-3: General Programming Parameters

Code Parameter	ID #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Code 39				*Enter 1 for On and 0 for Off.*		
Enable	00	On/Off	On *or* Off	Off	On	On
Minimum length	01	Value	00–60	00	00	00
Maximum length	02	Value	00–60	00	60	20
Enable checksum	03	On/Off	On *or* Off	Off	Off	Off
Send checksum	04	On/Off	On *or* Off	Off	Off	Off
Full ASCII mode	05	On/Off	On *or* Off	Off	On	On
Accumulate mode	06	On/Off	On *or* Off	Off	On	Off
Enable AIAG alternate check digit	07	On/Off	On *or* Off	Off	Off	Off
Interleaved 2 of 5				*Enter 1 for On and 0 for Off.*		
Enable	08	On/Off	On *or* Off	Off	On	On
Minimum length	09	Value	02–60	02	02	06
Maximum length	0A	Value	02–60	02	60	10
Enable checksum	0B	On/Off	On *or* Off	Off	Off	Off
Send checksum	0C	On/Off	On *or* Off	Off	Off	Off
Use lengths 6 and 14 only (case code)	0D	On/Off	On *or* Off	Off	Off	Off
Codabar				*Enter 1 for On and 0 for Off.*		
Enable	20	On/Off	On *or* Off	Off	On	On
Minimum length	21	Value	00–60	00	02	04
Maximum length	22	Value	00–60	00	60	20
Send start/stop	23	On/Off	On *or* Off	Off	Off	Off
Convert Codabar to CLSI	24	On/Off	On *or* Off	Off	Off	Off
Code 93				*Enter 1 for On and 0 for Off.*		
Enable	2C	On/Off	On *or* Off	Off	On	On
Minimum length	2D	Value	00–50	00	01	02
Maximum length	2E	Value	01–50	00	50	20

Code Parameter	ID #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Universal Product Code-A (UPC-A)			*Enter 1 for On and 0 for Off.*			
Enable	30	On/Off	On *or* Off	Off	On	On
Send system digit	31	On/Off	On *or* Off	Off	On	On
Send check digit	32	On/Off	On *or* Off	Off	On	Off
Convert UPC-A to EAN-13	33	On/Off	On *or* Off	Off	On	Off
Universal Product Code-E (UPC-E)			*Enter 1 for On and 0 for Off.*			
Use system digit 0	34	On/Off	On *or* Off	Off	On	On
Use system digit 1	35	On/Off	On *or* Off	Off	On	On
Convert UPC-E to UPC-A	36	On/Off	On *or* Off	Off	On	Off
Send system digit	37	On/Off	On *or* Off	Off	On	Off
Send check digit	38	On/Off	On *or* Off	Off	On	Off
European Article Numbering (EAN)/ Japan Article Numbering (JAN)			*Enter 1 for On and 0 for Off.*			
Enable EAN-8/JAN-8	39	On/Off	On *or* Off	Off	On	On
Enable EAN-13/JAN-13	3A	On/Off	On *or* Off	Off	On	On
Convert EAN-13 to ISBN	3B	On/Off	On *or* Off	Off	Off	Off
Send check digit	3F	On/Off	On *or* Off	Off	Off	On
UPC, EAN, JAN Extensions			*Enter 1 for On and 0 for Off.*			
Allow 2-digit extensions	3C	On/Off	On *or* Off	Off	On	On
Allow 5-digit extensions	3D	On/Off	On *or* Off	Off	On	On
Require extensions	3E	On/Off	On *or* Off	Off	Off	Off
Code 128			*Enter 1 for On and 0 for Off.*			
Enable	40	On/Off	On *or* Off	Off	On	On
Minimum length	41	Value	00–60	00	02	02
Maximum length	42	Value	00–60	00	60	20
Enable UCC128	43	On/Off	On *or* Off	Off	Off	Off

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Code Parameter	ID #	Type	Acceptable Input	Predefined Defaults		
				D0	D1	D2
Other Controls			*Enter 1 for On and 0 for Off.*			
Enable manual reset	B0	On/Off	On *or* Off	On	On	On
Auto-Off	B2	Value	00–99 *(minutes)*	00	60	10
Intercharacter delay (keyboard wedge only)	B3	Value	00–99 *(milliseconds)*	00	06	00
Add symbology identifiers*	B5	On/Off	On *or* Off	Off	On	Off
Good-read tone	B8	Value	00 *(low)* – 07 *(high)*	05	05	05
Good-read number of beeps	B9	Value	01–04	01	01	01
Good-read tone duration	BA	Value	00 = 0.14 sec. 01 = 0.07 sec. 02 = 0.45 sec. 03 = 0.22 sec.	01	01	01
Beeper volume	BC	Value	00 = Off 01 *(low)* – 07 *(high)* 08 = One level higher 09 = One level lower	07	07	07
Error tone	BD	Value	00 *(low)* – 07 *(high)*	03	03	03
Time format	D8	On/Off	On = 24-hour Off = 12-hour	On	On	On
Date format	D9	On/Off	On = International Off = U.S.	Off	Off	Off
Keyboard click	DD	On/Off	On *or* Off	On	On	On
Laser delay	DE	Value	00–99 *(10-millisecond units)*	01	01	01

*	A = UPC-A	E = UPC-E	K = Code 128
	B = Interleaved 2 of 5	G = EAN-8	L = Code 93
	C = Code 39	I = Codabar	M = EAN-13

Table A-4: Serial Programming Parameters

Code Parameter	ID #	Type	Acceptable Input	Predefined Default (C8)
				Enter 1 for On and 0 for Off.
Host select	C0	Value	11 = ATs, PS/2s, and compatibles 15 = IBM terminals	None
Baud rate	C1	Value	00 = 300 01 = 600 02 = 1200 03 = 2400 04 = 4800 05 = 9600 06 = 19,200 07 = 38,400 08 = 76,800	05
Data bits	C2	Value	07 = 7 bits 08 = 8 bits	08
Parity	C3	Value	00 = None 03 = Odd 04 = Even	00
Stop bits	C4	Value	01 = 1 bit 02 = 2 bits	01
Enable Xon/Xoff	C5	On/Off	On *or* Off	Off
Linefeed (LF) *(Valid for CA = 00 only)*	C6	Value	00 = None 01 = Strip LF 02 = Add LF	00
Predefined serial defaults	C8			
End-of-file character	C9	Value	Any single ASCII character	1A
Protocol	CA	Value	00 = EOR only 01 = CR with checksum and ACK/NAK response 02 = Xmodem	01
End-of-record (EOR) character	CC	Value	Any single ASCII character	(CR)
Timeout	CD	Value	00–99 *(100-millisecond units)*	10

B

Full Keyboard Support

Overview

Almost every key on the keyboard, including non-printing keys, can be programmed into the PT2000 or TopGun. The tables in this appendix list Code 39 equivalents for programming all keyboard keys.

Use the Code 39 values to create bar codes to include lowercase or non-alphanumeric characters in a bar code. For example, to include an exclamation mark (**!**) in a bar code, encode it as **/A** (slash capital **a**).

Note: ***Full ASCII mode for Code 39 must be enabled in the portable.***

Some keys act immediately when read into the portable. For example, the portable transmits the page-down command to the computer as soon as it reads a bar code containing the characters **%U$Z**.

Other keys are not quite so simple. For example, the **<Ctrl>** key has to be "turned on and off." When typing **<Ctrl>+<C>**, for instance, hold the **<Ctrl>** key down while pressing **<C>**, then release the **<Ctrl>** key. Three signals are sent to the host device:

> **<Ctrl>** key on (down) **<C>**   **<Ctrl>** key off (up)

To include the **<Ctrl>+<C>** keystroke combination in a bar code, encode **SCR**. Think this way when encoding **<Ctrl>**, **<Alt>**, **<Shift>**, and other keys requiring a key to be held down while another is pressed.

Including a function key in a bar code can present a problem if the portable is programmed to follow every bar code transmission with an autoterminator character. Eliminate the autoterminator in a bar code by including the "zap" character, **$Z**, in any bar code *not* followed by the autoterminator. For example, encode **%UAZ** to send function key **<F1>** with no autoterminator.

lists the Code 39 and ASCII equivalents for keys that are common to many keyboards. lists equivalents for additional keys found on IBM PC and compatible keyboards.

Table B-1: Common Keyboard Keys

Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
SP	space	20	:	/Z	3A
!	/A	21	;	%F	3B
"	/B	22	<	%G	3C
#	/C	23	=	%H	3D
$	/D	24	>	%I	3E
%	/E	25	?	%J	3F
&	/F	26	A	A	41
'	/G	27	B	B	42
(	/H	28	C	C	43
)	/I	29	D	D	44
*	/J	2A	E	E	45
+	/K	2B	F	F	46
,	/L	2C	G	G	47
-	- or /M	2D	H	H	48
.	. or /N	2E	I	I	49
/	/O	2F	J	J	4A
0	0 or /P	30	K	K	4B
1	1 or /Q	31	L	L	4C
2	2 or /R	32	M	M	4D
3	3 or /S	33	N	N	4E
4	4 or /T	34	O	O	4F
5	5 or /U	35	P	P	50
6	6 or /V	36	Q	Q	51
4	4 or /T	34	R	R	52
5	5 or /U	35	S	S	53
6	6 or /V	36	T	T	54
7	7 or /W	37	U	U	55
8	8 or /X	38	V	V	56
9	9 or /Y	39	W	W	57

table continues

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Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
X	X	58	o	+O	6F
Y	Y	59	p	+P	70
Z	Z	5A	q	+Q	71
@	%V	40	r	+R	72
[	%K	5B	s	+S	73
\	%L	5C	t	+T	74
]	%M	5D	u	+U	75
^	%N	5E	v	+V	76
_	%O	5F	w	+W	77
a	+A	61	u	+U	75
b	+B	62	v	+V	76
c	+C	63	w	+W	77
d	+D	64	x	+X	78
e	+E	65	y	+Y	79
f	+F	66	z	+Z	7A
g	+G	67	'	%W	60
h	+H	68	{	%P	61
i	+I	69			%Q	7C
j	+J	6A	}	%R	7D
k	+K	6B	~	%S	7E
l	+L	6C	Del	%T	7F
m	+M	6D	*Zap*	$Z	1A
n	+N	6E			
*Not an actual key; see information about the "zap" character on					

Table B-2: IBM (or Compatible) PC Keyboard Keys

Key	Code 39	ASCII Value	Key	Code 39	ASCII Value
F1	%U$A	8001	¦	%U%A	801B
F2	%U$B	8002	Ø	%U%B	801C
F3	%U$C	8003	¨	%U%C	801D
F4	%U$D	8004	Æ	%U%D	801E
F5	%U$E	8005	Caps Lock	$C	03
F6	%U$F	8006	Num Lock	$D	04
F7	%U$G	8007	Scroll Lock	$E	05
F8	%U$H	8008	Backspace	$H	08
F9	%U$I	8009	Horizontal Tab	$I	09
F10	%U$J	800A	Vertical Tab	$K	0B
F11	%U$K	800B	Enter	$M	0D
F12	%U$L	800C	Alt Off	$N	0E
Insert	%U$U	8015	Alt On	$O	0F
Home	%U$V	8016	Ctrl Off	$R	12
Page Up	%U$W	8017	Ctrl On	$S	13
Delete	%U$X	8018	Shift Off	$V	16
End	%U$Y	8019	Shift On	$W	17
Page Down	%U$Z	801A	Esc	%A	1B
Numeric Keypad					
Enter	%U%E	801F	3	%U3	8033
*	%U/J	802A	4	%U4	8034
+	%U/K	802B	5	%U5	8035
-	%U-	802D	6	%U6	8036
/	%U/O	802F	7	%U7	8037
0	%U0	8030	8	%U8	8038
1	%U1	8031	9	%U9	8039
2	%U2	8032			

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C

The TopGun Module

Attaching the TopGun Module to the PT2000

If the TopGun module and PT2000 were purchased separately, complete the following steps to connect them:

1. Pull the hook on the elastic hand strap out of the holder near the base of the PT2000 (refer to Figure C-1).

Figure C-1:   The back of the PT 2000

Remove these screws **after** releasing the hook

Release the strap hook here
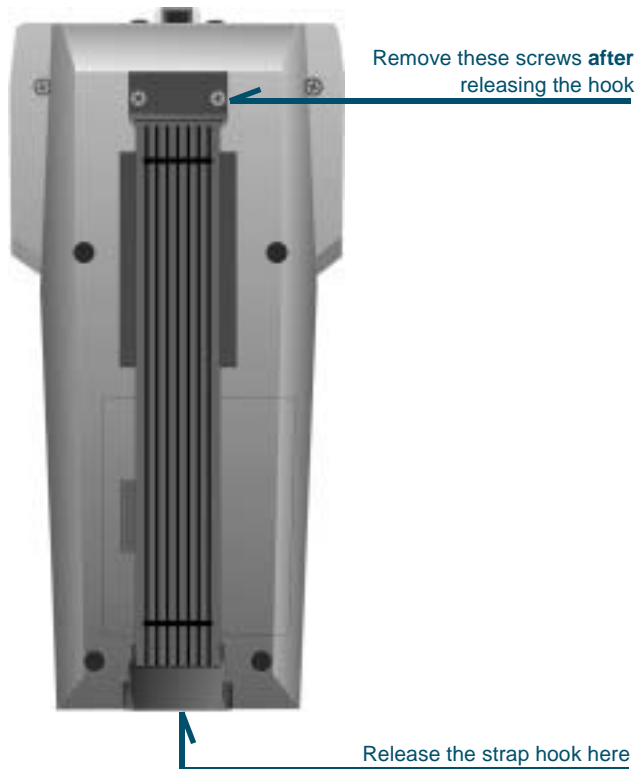
2. Remove the two screws that attach the other end of the hand strap to the PT 2000 (refer to Figure C-1).

Note: ***Contact a PSC dealer to order a replacement hand strap and screws. Request the PT2000 strap kit.***

Figure C-2: Attaching the TopGun module

3. Place the TopGun module on the top of the PT2000 and gently press it onto the 9-pin connector (refer to Figure C-2).

4. Place the flat metal plate at the top end of the elastic hand strap over the indentation on the back of the TopGun module and insert the screws (refer to Figure C-3).

Figure C-3:   Replacing the hand strap (magnified view)

Indentation on back
of TopGun module

Flat metal plate
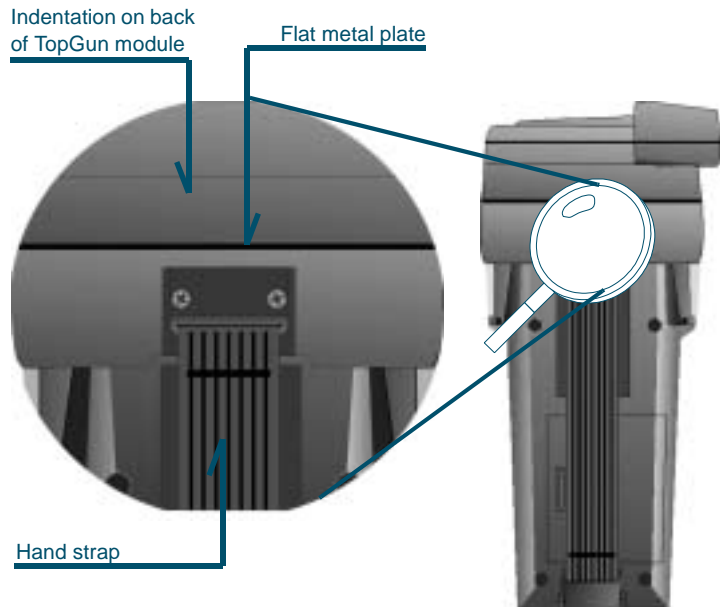
Hand strap

5. Tighten the screws until the metal plate is secure.

6. Replace the hand-strap hook into its holder.

Changing TopGun to a Left-Handed Model

TopGun comes assembled for right-handed use. To use the unit with the left hand, complete the following steps as shown in :

1. Remove the two screws from the top of the TopGun module.

Figure C-4:   Switching the Direction of the TopGun Module
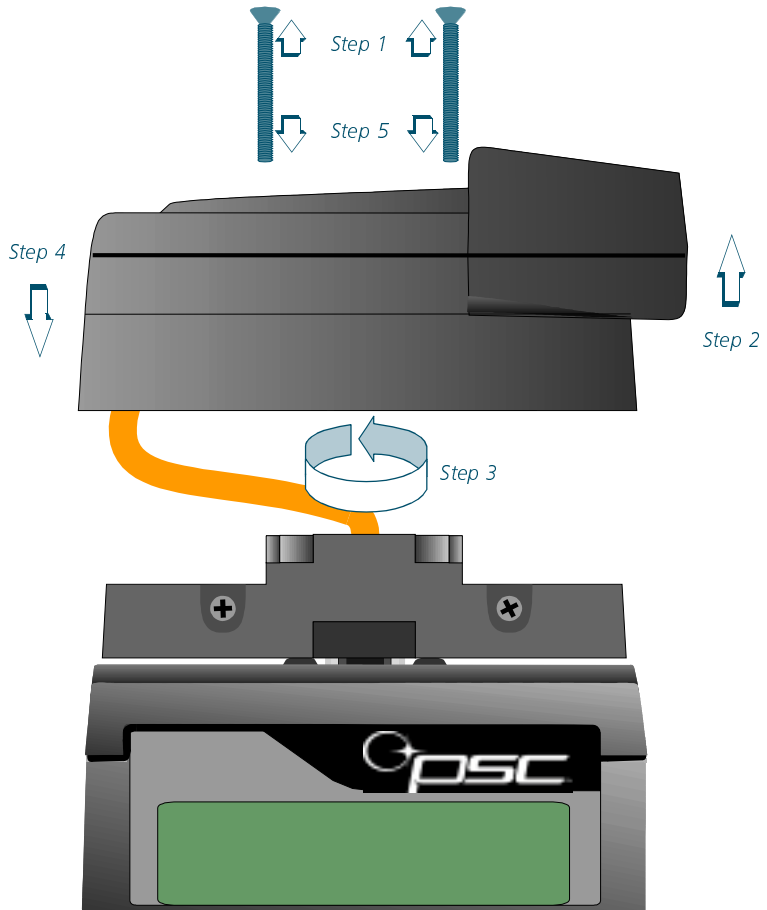
2. Gently lift the top to separate it from the rest of the module. (Be careful not to break the ribbon cable inside the module.)

3. Turn the top around so that the laser is pointing in the opposite direction.

4. Replace the top of the module.

5. Insert and tighten the two screws. (Do not over tighten them.)

Laser Specifications and Labeling

- Laser classification: CDRH Class II

- Light source: 680-nm laser diode

- Minimum element width: 6.0 mils

- Depth of field: 2 to 24 inches (55-mil labels)

- Operating temperature: -4° to 109°F (-20° to 43°C)

Figure C-5:   Product labeling for the TopGun module

D

The PT Dock

About the PT Dock

The PSC PT Dock is specially designed for use with the PT2000 or TopGun. Use the dock for data transmission between the portable and a PC. Remove the portable from the dock to use it for data collection.

The PT Dock comes with the following accessories:

- An adapter for the base of the PT2000 or TopGun, and two screws
- Rubber pads and Velcro™ strips for the bottom of the dock

A Power adapter and cables for the PT Dock are available separately from a PSC dealer.

Setting Up the Dock

Attaching the Dock Adapter to the Portable

Before using the PT Dock for the first time, connect the adapter to the base of the PT2000 or TopGun. Complete the steps in Figure D-1:

Caution: *Be careful not to overtighten the screws.*

1. Align the pins on the PT Dock adapter with the holes in the connector on the base of the PT2000 or TopGun. Be sure the orientation of the adapter matches the orientation of the base, as shown in Figure D-2 on page 109.

2. Gently press the PT Dock adapter into the base of the PT2000 or TopGun.

Figure D-1: The PT2000, PT Dock, and adapter

3. Use the two provided screws to secure the adapter to the portable.

Figure D-2: Attaching the adapter

Adapter, with longest edge up

Base of PT2000 or TopGun with keypad side up
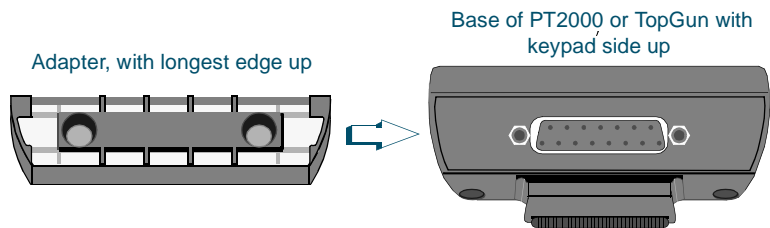
Attaching the PT Dock to a Computer

Set up the Dock as either a serial device or a keyboard wedge. The cable part number will depend upon your computer type and desired configuration (serial or keyboard wedge).

Note: **Refer to PSC's website at** www.pscnet.com **at the Service quick link, contact a PSC dealer, or contact PSC customer service at (541) 683-5700 to determine the appropriate PSC cable to use with the PT Dock.**

Caution: **Do not attempt to connect a PT Dock to a PC using an off-the-shelf RS-232 cable. Use a PSC cable manufactured specifically for the PT Dock.**

Serial Configuration

1. Be sure the power to the workstation is turned off.

2. One plug on the serial cable is labeled with the cable part number. Attach that plug to the cable input jack on the back of the PT Dock (refer to Figure D-3).

Note: **A power adapter is not required to run the PT Dock. The power adapter is used only to recharge the NiCd batteries in the portable. However, without an adaptor, the LED indicators on the PT Dock will not light up.**

3. Attach the other end of the cable to an available serial port on the PC.

4. If there is an optional power adapter, attach it to the power input jack on the back of the PT Dock. (Refer to page 112 for more information about the power adapter.)

5. Turn the workstation on.

Keyboard Wedge Configuration

To configure the keyboard wedge, complete the following steps:

1. Turn off the power to the workstation.

2. Plug the 25-pin connector of the cable into the cable input jack on the back of the PT Dock (refer to <u>Figure D-3</u>).

Figure D-3: Back of the PT Dock

Power input jack   Cable input jack
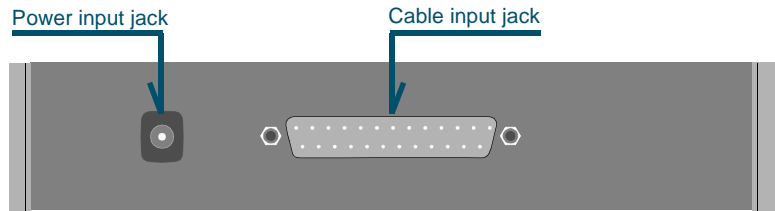
3. Attach the small male plug of the PSC cable to the keyboard jack on the workstation (refer to <u>Figure D-4 on page 112</u>).

4. Attach the keyboard cable to the small female jack on the PSC cable (refer to <u>Figure D-4 on page 112</u>).

5. Turn the workstation on. The green light-emitting diode (LED) labeled POWER on the front panel of the PT Dock should light up.

Figure D-4:   Sample PSC Keyboard wedge
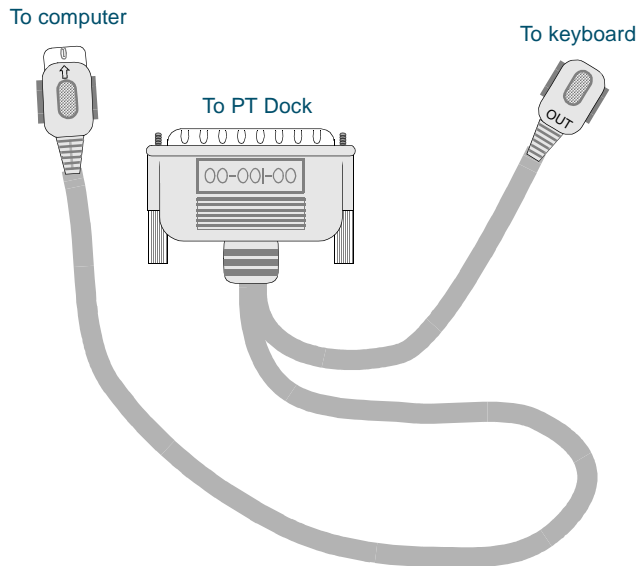
About the Power Adapter

To use the PT Dock with a serial cable, use a 9-volt power adapter to recharge the NiCd batteries in the PT2000 or TopGun. Power adapters are available from a PSC dealer. (When using the keyboard wedge configuration, power is supplied by the workstation.)

Note: *Use only a 9-volt power adapter supplied by PSC. Using another adapter can damage the unit.*

Attach the small, round plug of the power adapter to the power input jack on the back of the PT Dock (refer to Figure D-3). Plug the other end into a 110-volt outlet or power strip. The green light-emitting diode (LED) labeled **POWER** on the front panel of the PT Dock should light up.

Using the PT Dock

Set up the PT Dock as described in the preceding section. Place the PT2000 or TopGun into the dock, with the keypad facing out. To use a power adapter or the keyboard wedge configuration, the green LED labeled **READY** on the front panel of the PT Dock should light up. (If the **READY** light does not come on, make sure the **POWER** light is on and the portable is fully inserted into the dock. If it still doesn't work, make sure the PT Dock adapter is securely attached to the portable and that the contacts in the dock are clean.)

When the portable is in the Dock, the user may download programs or data to it, or upload data from it, just as if it were connected directly to a workstation. The user can also leave the unit in the dock while using an attached bar code reader.

Recharging the Portable's Batteries

Note: *Use the keyboard wedge connection or the power adapter to recharge the batteries.*

When using a nickel-cadmium (NiCd) battery pack in the portable, use the PT Dock to recharge it. Leave the battery pack in the portable while it is in the dock. The battery pack and the backup battery will be recharged while the **READY** light is on. (Refer to page page 116 to make sure **Switch 2** in the portable's battery compartment is correctly positioned.)

Maintenance

With normal use, the PT Dock should require no maintenance. To clean the contacts in the Dock or on the adapter, wipe them with a damp cloth after removing the power supply (adapter or keyboard wedge cable) from the unit. Wait for the contacts to dry before using the PT Dock again.

E

Batteries

The PT2000 and TopGun run on two types of batteries. The main batteries supply operating power for the PT2000 unit and for the TopGun module or another input device. The internal lithium battery provides backup power to maintain the random-access memory and real-time clock when the main batteries are removed.

The portable can use two different types of main batteries: individual alkaline cells or a rechargeable nickel-cadmium (NiCd) battery pack.

Alkaline Batteries

The PSC PT2000 or TopGun comes with three alkaline batteries installed. To replace the alkaline batteries, complete the following steps:

1. Detach the elastic hand strap on the back of the portable by pulling its hook out of its holder near the base (refer to Figure C-1 on page 100).

2. Press on the arrow symbol on the battery-compartment cover and push the cover in the direction indicated by the arrow.

3. Pull the end of the plastic ribbon sticking out of the battery compartment toward the batteries until they pop out.

4. Set the two switches inside of the battery compartment for the type of batteries being used.

Figure E-1: Base of the battery compartment
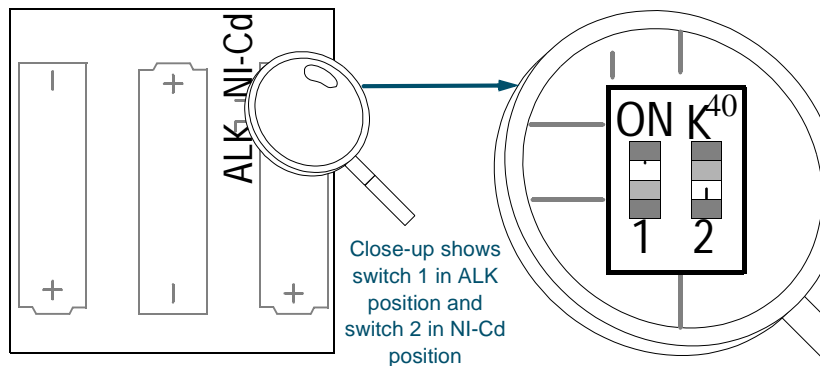
Close-up shows switch 1 in ALK position and switch 2 in NI-Cd position

- Refer to the diagram inside the battery compartment which indicates the positions for alkaline (**ALK**) and nickel-cadmium (**NiCd**) batteries (refer to Figure E-1).
- Make sure **Switch 2** is in the **ALK** position. If necessary, use a pen or a small screwdriver to slide the switch to that position.

Caution: **Switch 2** *must be in the* **ALK** *position to prevent the unit from attempting to charge the alkaline batteries. This could cause them to leak, damage the unit, and void the product warranty.*

- **Switch 1** may be in either position.

5. Lay the plastic ribbon along the bottom of the battery compartment with the end sticking out of the compartment.

6. Insert the batteries in the positions indicated by the diagram inside the compartment.

7. Replace the battery-compartment cover by sliding it into place.
   - Make sure the plastic ribbon is tucked underneath the cover.

8. Replace the hand-strap hook into its holder.

NiCd Battery Pack

The battery pack for the PT2000 and TopGun (PSC part #00-862-00) contains three rechargeable AA NiCd batteries. To install the NiCd battery pack, complete the following steps:

1. Detach the elastic hand strap on the back of the portable by pulling its hook out of its holder near the base (refer to Figure C-1 on page 100).

2. Press on the arrow symbol on the battery-compartment cover and push the cover in the direction indicated by the arrow.

3. Pull the end of the plastic ribbon sticking out of the battery compartment toward the batteries until they pop out.

4. Set the two switches inside of the battery compartment for the type of batteries being used.
   - Refer to the diagram inside the battery compartment which indicates the positions for alkaline (**ALK**) and nickel-cadmium (**NiCd**) batteries (refer to Figure E-1).
   - Make sure **Switch 2** is in the **NiCd** position. If necessary, use a pen or a small screwdriver to slide the switch to that position.
   - **Switch 1** may be in either position.

5. Lay the plastic ribbon along the bottom of the battery compartment with the end hanging out of the compartment.

6. Find the positive (**+**) and negative (**-**) symbols on the battery pack's label (refer to Figure E-2). With the label facing up, tilt the negative end of the pack into the upper end of the battery compartment, and then gently press the positive end until it is fully inserted into the battery compartment.

Figure E-2: Battery pack label
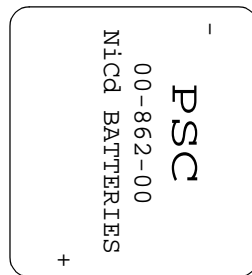
7. Replace the battery-compartment cover by sliding it into place.
   - Make sure the plastic ribbon is tucked underneath the cover.

8. Replace the hand-strap hook into its holder.

Caution: ***Do not short-circuit a battery—damage to the battery can result. Do not incinerate, crush, or puncture batteries. The electrolyte contained in NiCd batteries is composed of caustic materials that are harmful to the eyes and skin. Dispose of batteries in compliance with all applicable regulations.***

Recharging the NiCd Battery Pack

If the portable will not turn on or if the message **LOW BATTERY** appears on the display, the battery pack needs recharging. To recharge the NiCd battery pack, use a cable and an external 9-volt power adapter (refer to Figure D-1 on page 109). A full charge takes about eight hours.

To recharge the NiCd battery pack, complete the following steps:

1. If the portable is on, turn it off.

2. One of the connectors on the cable has the cable number on it. Plug that connector into the cable input jack on the bottom of the portable.

Caution: ***Use only a power adapter supplied by a PSC dealer. Using another adapter can damage the unit.***

3. Attach the small, round plug of the 9-volt power adapter to the round power input jack on the cable connector labeled **COMPUTER**. Plug the other end into an outlet or power strip.

Use the PT Dock to recharge the NiCd batteries. Leave the batteries in the unit while it is in the Dock. The batteries recharge while the **READY** light is on. (Make sure **Switch 2** in the portable's battery compartment is in the **NiCd** position; refer to Figure E-1.)

It is best to charge the battery pack at or slightly below room temperature. Always charge the battery within the temperature range of 50°–85°F (10°–30°C).

Storing the NiCd Battery Pack

The battery pack can be stored indefinitely, regardless of its charge state. Store it between -22° and 122°F (-30° to 50°C). Stored batteries lose about ten percent of their charge per month when they are kept at room temperature. Batteries stored at higher temperatures discharge at a faster rate.

Lithium Backup Battery

The portable contains a lithium battery as a backup to save application program codes, collected data and system information, including the clock setting. Under most circumstances, a fully charged backup battery will keep information for at least 10 days if the main batteries are completely discharged or removed. This should provide sufficient time to recharge the battery pack without risk of losing data.

The backup battery is recharged whenever a charged battery pack is installed as well as when the power supply is connected.

If the lithium battery is allowed to discharge, any application program code that is resident in the random-access memory will be lost, Consequently, when a charged battery pack is installed and the unit is turned ON, it is likely that the operating system will detect the corrupted application code and will display a **PROGRAM FAILED** message.

Low Battery Indication

NiCd Battery Pack or Alkaline Batteries

The portable indicates when the battery pack or alkaline batteries are low by flashing **LOW BATTERY** on the display. About 20 minutes of use remain before the main batteries reach their automatic low-power shutdown point.

If the battery pack is not recharged before it reaches the low-power shutdown point, it continues to discharge, and the portable turns off automatically. Even then, the portable continues to save data, because of the lithium backup battery. It is important, however, to recharge the battery pack or replace the alkaline batteries at this time to avoid running down the backup battery and losing data.

Backup Battery

When the lithium backup battery is low. or after inserting a battery pack if the portable has been stored for a long time without charging, the message in appears on the display

Figure E-3: Please Wait Charging Backup Battery Message

```
PLEASE WAIT
CHARGING
BACKUP BATTERY
¤
```

The backup battery begins recharging as soon as a charged battery pack is inserted. The message should disappear after approximately 10 minutes, although it may take up to an hour to recharge a completely discharged backup battery.

Caution: ***Do not remove the battery pack while the message is on the display, or data may be lost. Charge the battery pack inside the portable while using the Dock.***

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If the message does not disappear or occurs other than at initial use after prolonged storage, then the backup battery may no longer be accepting a charge from the battery pack or adapter. Contact a PSC dealer.

Use the PT Dock to recharge the lithium backup battery in the portable. The battery will be recharged while the **READY** light is on. (Make sure the switch in the portable's battery compartment is in the correct position for the type of batteries being used.)

F

Connector Configurations

Bar Code & Magnetic Stripe Reader Connector

Figure F-1:   Bar Code & Magnetic Stripe Reader Pinouts
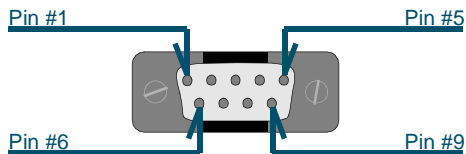
Table F-1:   Bar Code & Magnetic Stripe Reader Pinouts

Pin #	Description
1	Laser sync in
2	Bar code data in
3	Good-read out
4	Mag stripe information in
5	Laser trigger in
6	Laser-scan enable out
7	Ground
8	Ground
9	+5V

Interface Cable Connector

Figure F-2:   Interface Cable Connector Pinouts
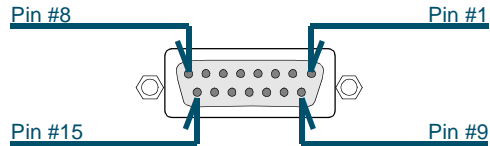
Table F-2:   Interface Cable Connector Pinouts

Pin #	Description
1	Shield
2	Transmit data out
3	Receive data in
4	Hardware handshake out*
5	Hardware handshake in
6	Not used
7	Ground
8	Cable detect
9	+5V in
10	+9V in
11	485+
12	485-
13	Wedge clock
14	Wedge data
15	Wedge keyboard enable
* Must be connected to CTS or hardware handshake out on the computer.	

PT Dock

Figure F-3: PT Dock Pinouts
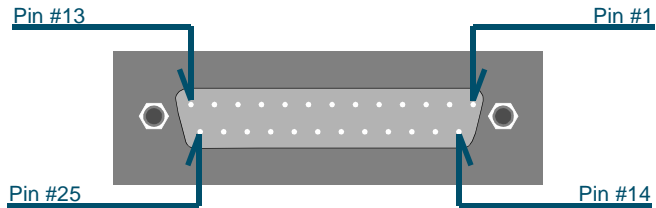
Table F-3: PT Dock Pinouts

Pin #	Description	Usage	Pin #	Description	Usage
1	No connection		14	Ground	
2	No connection	Reserved	15	No connection	
3	No connection	Reserved	16	No connection	
4	485-	Reserved	17	No connection	
5	485+	Reserved	18	No connection	
6	No connection		19	Serial handshake out	Controls received data
7	Keyboard interface		20	Serial data in	Received data to dock
8	Keyboard interface		21	Serial data out	Transmitted data from dock
9	No connection		22	No connection	
10	No connection		23	+5V	+5 volts in to dock
11	Serial handshake in	Controls transmitted data	24	No connection	
12	Keyboard interface		25	Ground	
13	Keyboard interface				

G

Programming Bar Codes

This chapter provides bar codes for common setup parameters that can be used for programming the PSC PT2000 and TopGun. Factory default settings are <u>underlined</u>.

Predefined Defaults

DO

* $ + $ - D 0 E E *

D2

* $ + $ - D 2 E E *

D1

* $ + $ - D 1 E E *

Serial
defaults

* $ + $ - C 8 E E *

Code 39

ENABLE

On

* $ + $ - 0 0 1 E E *

Off

* $ + $ - 0 0 0 E E *

MINIMUM LENGTH

00

* $ + $ - 0 1 0 0 E E *

40

* $ + $ - 0 1 4 0 E E *

10

* $ + $ - 0 1 1 0 E E *

50

* $ + $ - 0 1 5 0 E E *

20

* $ + $ - 0 1 2 0 E E *

60

* $ + $ - 0 1 6 0 E E *

30

* $ + $ - 0 1 3 0 E E *

MAXIMUM LENGTH

10 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 1 Q E E *

40 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 4 Q E E *

20 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 2 Q E E *

50 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 5 Q E E *

30 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 3 Q E E *

60 ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 2 6 Q E E *

ENABLE CHECKSUM

On ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 3 1 E E *

Off ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 3 Q E E *

SEND CHECKSUM

On ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 4 1 E E *

Off ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 4 Q E E *

FULL ASCII MODE

On ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 5 1 E E *

Off ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 5 Q E E *

ACCUMULATE MODE

On ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 6 1 E E *

Off ‖‖‖‖‖‖‖‖‖‖‖‖ * $ + $ - Q 6 Q E E *

ENABLE AIAG ALTERNATE CHECK DIGIT

On ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 7 1 E E *

Off ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 7 0 E E *

Interleaved 2 of 5

ENABLE

On ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 8 1 E E *

Off ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 8 0 E E *

MINIMUM LENGTH

2 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 0 2 E E *

30 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 3 0 E E *

6 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 0 6 E E *

40 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 4 0 E E *

10 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 1 0 E E *

50 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 5 0 E E *

20 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 2 0 E E *

60 ▮▮▮▮▮▮▮▮▮▮
* $ + $ - 0 9 6 0 E E *

MAXIMUM LENGTH

10

$+$-QA1QEE

40

$+$-QA4QEE

20

$+$-QA2QEE

50

$+$-QA5QEE

30

$+$-QA3QEE

60

$+$-QA6QEE

REQUIRED LENGTH *(no default; overrides minimum and maximum settings)*

2

$+$-Q9Q2QAQ2EE

12

$+$-Q912QA12EE

4

$+$-Q9Q4QAQ4EE

14

$+$-Q914QA14EE

6

$+$-Q9Q6QAQ6EE

16

$+$-Q916QA16EE

8

$+$-Q9Q8QAQ8EE

18

$+$-Q918QA18EE

10

$+$-Q91QQA1QEE

20

$+$-Q92QQA2QEE

ENABLE CHECKSUM

On ||||||||||||||||||||||||| `* $ + $ - 0 B 1 E E *`

Off ||||||||||||||||||||||||| `* $ + $ - 0 B 0 E E *`

SEND CHECKSUM

On ||||||||||||||||||||||||| `* $ + $ - 0 C 1 E E *`

Off ||||||||||||||||||||||||| `* $ + $ - 0 C 0 E E *`

USE LENGTHS 6 AND 14 ONLY *(case code)*

On ||||||||||||||||||||||||| `* $ + $ - 0 D 1 E E *`

Off ||||||||||||||||||||||||| `* $ + $ - 0 D 0 E E *`

Codabar

ENABLE

On ||||||||||||||||||||||||| `* $ + $ - 2 0 1 E E *`

Off ||||||||||||||||||||||||| `* $ + $ - 2 0 0 E E *`

MINIMUM LENGTH

04   `* $ + $ - 2 1 0 4 E E *`   40   `* $ + $ - 2 1 4 0 E E *`

10   `* $ + $ - 2 1 1 0 E E *`   50   `* $ + $ - 2 1 5 0 E E *`

20   `* $ + $ - 2 1 2 0 E E *`   60   `* $ + $ - 2 1 6 0 E E *`

30   `* $ + $ - 2 1 3 0 E E *`

MAXIMUM LENGTH

10   `* $ + $ - 2 2 1 0 E E *`   40   `* $ + $ - 2 2 4 0 E E *`

20   `* $ + $ - 2 2 2 0 E E *`   50   `* $ + $ - 2 2 5 0 E E *`

30   `* $ + $ - 2 2 3 0 E E *`   60   `* $ + $ - 2 2 6 0 E E *`

SEND STOP/START

On   `* $ + $ - 2 3 1 E E *`   Off   `* $ + $ - 2 3 0 E E *`

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CONVERT CODABAR TO CLSI

On
$+$-241EE

Off
$+$-240EE

Code 93

ENABLE

On
$+$-2C1EE

Off
$+$-2C0EE

MINIMUM LENGTH

2
$+$-2D02EE

30
$+$-2D30EE

10
$+$-2D10EE

40
$+$-2D40EE

20
$+$-2D20EE

50
$+$-2D50EE

MAXIMUM LENGTH

2

```
* $ + $ - 2 E 0 2 E E *
```

30

```
* $ + $ - 2 E 3 0 E E *
```

10

```
* $ + $ - 2 E 1 0 E E *
```

40

```
* $ + $ - 2 E 4 0 E E *
```

<u>20</u>

```
* $ + $ - 2 E 2 0 E E *
```

50

```
* $ + $ - 2 E 5 0 E E *
```

UPC-A

ENABLE UPC-A

<u>On</u>

```
* $ + $ - 3 0 1 E E *
```

Off

```
* $ + $ - 3 0 0 E E *
```

SEND SYSTEM DIGIT

<u>On</u>

```
* $ + $ - 3 1 1 E E *
```

Off

```
* $ + $ - 3 1 0 E E *
```

SEND CHECK DIGIT

On

```
* $ + $ - 3 2 1 E E *
```

<u>Off</u>

```
* $ + $ - 3 2 0 E E *
```

CONVERT UPC-A TO EAN-13

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 3 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 3 0 E E *

UPC-E

USE SYSTEM DIGIT 0

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 4 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 4 0 E E *

USE SYSTEM DIGIT 1

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 5 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 5 0 E E *

CONVERT UPC-E TO UPC-A

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 6 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 6 0 E E *

SEND SYSTEM DIGIT

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 7 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 7 0 E E *

SEND CHECK DIGIT

On

||||||||||||||||||||||||||||||||||
* $ + $ - 3 8 1 E E *

Off

||||||||||||||||||||||||||||||||||
* $ + $ - 3 8 0 E E *

EAN/JAN

ENABLE EAN-8/JAN-8

On

||||||||||||||||||||||||||||
* $ + $ - 3 9 1 E E *

Off

||||||||||||||||||||||||||||
* $ + $ - 3 9 0 E E *

ENABLE EAN-13/JAN-13

On

||||||||||||||||||||||||||||
* $ + $ - 3 A 1 E E *

Off

||||||||||||||||||||||||||||
* $ + $ - 3 A 0 E E *

CONVERT EAN-13 TO ISBN

On

||||||||||||||||||||||||||||
* $ + $ - 3 B 1 E E *

Off

||||||||||||||||||||||||||||
* $ + $ - 3 B 0 E E *

SEND CHECK DIGIT

On

||||||||||||||||||||||||||||
* $ + $ - 3 F 1 E E *

Off

||||||||||||||||||||||||||||
* $ + $ - 3 F 0 E E *

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UPC/EAN/JAN Extensions

ALLOW 2-DIGIT EXTENSIONS

On

```
* $ + $ - 3 C 1 E E *
```

Off

```
* $ + $ - 3 C 0 E E *
```

ALLOW 5-DIGIT EXTENSIONS

On

```
* $ + $ - 3 D 1 E E *
```

Off

```
* $ + $ - 3 D 0 E E *
```

REQUIRE EXTENSIONS

On

```
* $ + $ - 3 E 1 E E *
```

Off

```
* $ + $ - 3 E 0 E E *
```

Code 128

ENABLE

On

```
* $ + $ - 4 0 1 E E *
```

Off

```
* $ + $ - 4 0 0 E E *
```

MINIMUM LENGTH

2

```
* $ + $ - 4 1 0 2 E E *
```

40

```
* $ + $ - 4 1 4 0 E E *
```

10

```
* $ + $ - 4 1 1 0 E E *
```

50

```
* $ + $ - 4 1 5 0 E E *
```

20

```
* $ + $ - 4 1 2 0 E E *
```

60

```
* $ + $ - 4 1 6 0 E E *
```

30

```
* $ + $ - 4 1 3 0 E E *
```

MAXIMUM LENGTH

10

```
* $ + $ - 4 2 1 0 E E *
```

40

```
* $ + $ - 4 2 4 0 E E *
```

20

```
* $ + $ - 4 2 2 0 E E *
```

50

```
* $ + $ - 4 2 5 0 E E *
```

30

```
* $ + $ - 4 2 3 0 E E *
```

60

```
* $ + $ - 4 2 6 0 E E *
```

ENABLE UCC128

On

```
* $ + $ - 4 3 1 E E *
```

Off

```
* $ + $ - 4 3 0 E E *
```

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Other Controls

ENABLE MANUAL RESET

On

* $ + $ - B 0 1 E E *

Off

* $ + $ - B 0 0 E E *

AUTO-OFF *(in minutes)*

Off

* $ + $ - B 2 0 0 E E *

30

* $ + $ - B 2 3 0 E E *

5

* $ + $ - B 2 0 5 E E *

60

* $ + $ - B 2 6 0 E E *

10

* $ + $ - B 2 1 0 E E *

90

* $ + $ - B 2 9 0 E E *

INTERCHARACTER DELAY *(in milliseconds)*

0

* $ + $ - B 3 0 0 E E *

50

* $ + $ - B 3 5 0 E E *

10

* $ + $ - B 3 1 0 E E *

75

* $ + $ - B 3 7 5 E E *

25

* $ + $ - B 3 2 5 E E *

99

* $ + $ - B 3 9 9 E E *

ADD CODE ID

On

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 5 1 E E *

Off

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 5 0 E E *

GOOD-READ TONE

Low

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 8 0 0 E E *

Medium
High

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 8 0 5 E E *

Medium
Low

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 8 0 2 E E *

High

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 8 0 7 E E *

GOOD-READ BEEPS

1

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 9 0 1 E E *

3

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 9 0 3 E E *

2

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 9 0 2 E E *

4

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B 9 0 4 E E *

GOOD-READ TONE DURATION *(in seconds)*

0.07

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B A 0 1 E E *

0.22

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B A 0 3 E E *

0.14

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B A 0 0 E E *

0.45

‖‖‖‖‖‖‖‖‖‖‖‖
* $ + $ - B A 0 2 E E *

BEEPER VOLUME

Increase

```
* $ + $ - B C 0 8 E E *
```

Low

```
* $ + $ - B C 0 1 E E *
```

Decrease

```
* $ + $ - B C 0 9 E E *
```

High

```
* $ + $ - B C 0 7 E E *
```

Off

```
* $ + $ - B C 0 0 E E *
```

ERROR TONE

Low

```
* $ + $ - B D 0 1 E E *
```

High

```
* $ + $ - B D 0 7 E E *
```

Medium

```
* $ + $ - B D 0 4 E E *
```

KEYBOARD CLICK

On

```
* $ + $ - D D 1 E E *
```

Off

```
* $ + $ - D D 0 E E *
```

Clock and Calendar

Set Time

```
* % - *
```

Set Date

```
* % . *
```

CLOCK FORMAT

12-Hour

```
* $ + $ - D 8 0 E E *
```

24-Hour

```
* $ + $ - D 8 1 E E *
```

DATE FORMAT

U.S.

```
* $ + $ - D 9 0 E E *
```

International

```
* $ + $ - D 9 1 E E *
```

Serial Parameters

HOST SELECT *(no default)*

AT, PS/2, or compatible

```
* $ + $ - C 0 1 1 E E *
```

IBM terminal

```
* $ + $ - C 0 1 5 E E *
```

BAUD RATE

300

```
* $ + $ - C 1 0 0 E E *
```

1200

```
* $ + $ - C 1 0 2 E E *
```

600

```
* $ + $ - C 1 0 1 E E *
```

2400

```
* $ + $ - C 1 0 3 E E *
```

4800

`* $ + $ - C 1 0 4 E E *`

38,400

`* $ + $ - C 1 0 7 E E *`

<u>9600</u>

`* $ + $ - C 1 0 5 E E *`

76,800

`* $ + $ - C 1 0 8 E E *`

19,200

`* $ + $ - C 1 0 6 E E *`

DATA BITS

7

`* $ + $ - C 2 0 7 E E *`

<u>8</u>

`* $ + $ - C 2 0 8 E E *`

PARITY

<u>None</u>

`* $ + $ - C 3 0 0 E E *`

Even

`* $ + $ - C 3 0 4 E E *`

Odd

`* $ + $ - C 3 0 3 E E *`

STOP BITS

<u>1</u>

`* $ + $ - C 4 0 1 E E *`

2

`* $ + $ - C 4 0 2 E E *`

ENABLE XON/OFF

On

`* $ + $ - C 5 1 E E *`

<u>Off</u>

`* $ + $ - C 5 0 E E *`

LINEFEED

None

Add LF

```
* $ + $ - C 6 0 0 E E *
```

```
* $ + $ - C 6 0 2 E E *
```

Strip LF

```
* $ + $ - C 6 0 1 E E *
```

PROTOCOL

EOR only

Xmodem

```
* $ + $ - C A 0 0 E E *
```

```
* $ + $ - C A 0 2 E E *
```

CR with checksum and ACK/NAK response

```
* $ + $ - C A 0 1 E E *
```

TIMEOUT *(in 100-millisecond units)*

0

50

```
* $ + $ - C D 0 0 E E *
```

```
* $ + $ - C D 5 0 E E *
```

10

75

```
* $ + $ - C D 1 0 E E *
```

```
* $ + $ - C D 7 5 E E *
```

25

99

```
* $ + $ - C D 2 5 E E *
```

```
* $ + $ - C D 9 9 E E *
```

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DECLARATION OF CONFORMITY

**PSC Inc. hereby declares that the equipment specified below
has been tested and found compliant to the following directives and standards –**

Directives:	**EMC 89/336/EEC**
	Low Voltage 73/23/EEC
	R&TTE 1999/5/EC

	Standards
Equipment:	**EN 55022-A&B:1994/1998, EN 50082-1:1992/1998**
	EN 55024:1998, EN 60825-1:1996, EN 60950:1998
Power Supplies:	**EN 55014-1/2:1993/1997, EN 61558-1:1997**
	EN 61558-2-6:1997
Radios:	**ETS 300 328:1995/1996, EN 300 826:1997**
	EN 301.489.1/17:2000, EN 60950:1992+A4

Equipment Type:	**Portable Data Terminal Equipment**
Product:	**Falcon Family Models 31X, 32X, 33X, 34X, 51X, Single Dock Station, 4-Slot Dock Station, and PT2000**

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